

Desert

JANUARY, 1956 35 Cents





Velvet Ant. Photo by Richard L. Cassell.

IN A GARDEN ON THE HILL

By MABEL M. CONARD
Shelby, Montana

In a Monastery Garden with the willows
bended low,
We stood in silent reveries, so none but we
should know
That we, too, shared the beauty of the
organ's sacred strains,
And the choir's blended voices through the
fragrant flower lanes.

While we strolled about the rock- paths and
the campus long and wide,
A cricket chirped his ecstasy in a cypress
by my side;
He, 'tis certain, knew my elation when you
plucked for me a flower
—A single, fragrant blossom, like that silent,
fleeting hour.

We loved the silence in the garden
On that softly starlit night
And the darkness stealing o'er us
Beyond the Chapel's guiding light.

The music soon grew fainter and the lights
grew fainter still,
As the darkly shrouded figures gathered
near us on the Hill;
A bell so softly pealed as they knelt to Love
and Pray
And we knew our hour was ended, as we
turned to find our way.

Back to a worldly, lonesome road — our
hopes to fill;
Back—back to Reality, far away—beyond
the Hill.

SUNSET—WASHOE VALLEY

By KATHARINE JONES
Reno, Nevada

How wide and peaceful is the sunset sky
Enfolding this brown autumn land
In transient golden light;
Weaving its music strand by strand
In silent rays foretelling night.
Across the reed-fringed lake
A white bird takes his leisured flight
Undisturbed by any moving thing,
Over the still, reflected glow . . .
Into the dusk of evening.

COTTONTAIL

By ADELAIDE COKER
Ojai, California
Against the snow he lay,
A fluff of silver gray,

And I so close to him
I had the greatest whim

To tweak a flattened ear,
Or stroke away the fear

Revealed in twitching nose
And breathless, rigid pose—

Instead—I played stone blind
And gave him peace of mind.

DESERT JUSTIFICATION

By SARAH PHILLIPS SALINGER
Santa Barbara, California
The desert does not ask man's leave,
Nor praise, nor condemnation;
It knows it is a vital part
Of earth, and world creation.

When tumult reigned and forces raged
Each mightier than the other
The mystery of life began
And Earth became a Mother.

Man's hour on earth is short, at best;
The desert will remain . . .
As long as stars and desert flowers
Creation's word, proclaim.

SOME DAY

By TANYA SOUTH

If you would see Life just and fair,
Then view it in its larger sense,
Remembering the fate we bear
Will some day bring full recom-
pense.

Some day, in some existence new,
There will be joys for grief now
borne,
And you will reap your measure true,
For all your work for you shall earn.

LITTLE UPHOLSTERED BUG

By VIRGINIA L. BRUCE
Hemet, California

While strolling along on the desert,
He barely escaped being mush—
This miniature ebony creature
Upholstered in bright orange plush.

For I, like a two-legged monster
From civilized parts over yon
Was steadily plodding—unheeding
Of what I was stepping upon.

Not a moment too soon did I see him,
And swerve from my pre-destined track
In hopes of successfully leaving
His immaculate perfection intact.

Then winking his black beady eyes,
He briskly strolled off with his fuzz;
And I don't to this bright, sunny day—
know
What the scientific name of him was!

MUCHACHO Y PERRO

By DARRELL A. TOTTEN
Henderson, Nevada

A boy and his dog on a desert trail,
Exploring the wide "out yonder."
Their friends are the lizards and desert quail
They find wherever they wander.

They detour the rattler who sounds an alarm
Which strikes fear to most grown-up's
hearts.

These two are safer — much safer — from
harm
Than mariners sailing by charts.

They go on their way, both having their
fun—

Chasing chipmunks they never catch.
Dodging cactus and thornbush as they run,
They avoid the tiniest scratch.

They play with the horned-toad, but leave
alone

The scorpion with his sharp tail.
Danger and fear are to them words unknown
As they follow their desert trail.

THE DESERT

By MILDRED DAVIDSON
Los Angeles, California

When Mother Nature garnished
This old world of ours,
With trees and grass and waterfalls,
And mountains, brooks and flowers;
She painted the desert first of all
From a bounteous color supply,
Borrowing the spectrum as it were
And using it as a dye.

The jutting rocks, the rosy crags,
The needled cactus trees—
The white sand hot from the blazing sun,
The sky as blue as the seas;
No cloud dare ever penetrate
This place of serenity,
Nor bring its gloom to this vast room
Of beauteous ecstasy.

EPITAPH

By KATHARINE JONES
Reno, Nevada

If I could always be a part
Of elemental sun and rain,
The mountains and a windswept plain,
Know the miracle of desert spring,
And fly on a bird's unfettered wing—
Then this brief life would seem to me
A preface to reality.

DESERT CALENDAR

- January 1—Buffalo or Deer Dance, Taos Pueblo, New Mexico; Several other Indian Pueblos will stage Ceremonial Dances.
- January 1—New Years Ski Races, Arizona Snow Bowl, sponsored by Ski Club, Phoenix.
- January 2-7—Arizona National Livestock Show, State Fairgrounds, Phoenix, Arizona.
- January 6—Installation of new governors in most New Mexico Indian Pueblos; Buffalo Dance at Taos Pueblo; Eagle Dance at San Ildefonso Pueblo; Three Kings' Day or "Old Christmas" celebrated in various northern rural villages.
- January 6—"Twelfth Night," burning of Christmas Trees and New Year's Pageant, Raton, New Mexico.
- January 7—Ceremonial Dances in many of the New Mexico Indian Pueblos.
- January 7—Palm Springs, California, Desert Museum field trip to Dos Palmas Spring and Asbestos Mountain.
- January 8—Dons Travelcade to Apache Trail, from Phoenix, Arizona.
- January 8-14—Carolus Verhaeren exhibition, Desert Magazine Pueblo Art Gallery, Palm Desert, Calif.
- January 13-15—Arizona Newspaper Asso. Convention, Hotel Westward Ho, Phoenix, Arizona.
- January 14—Palm Springs, California, Desert Museum field trip, destination unannounced.
- January 14-15—Phoenix, Arizona, Invitational Tennis Tournament.
- January 14-15—Dons Travelcade to Chiricahua National Monument-Douglas - Nogales, from Phoenix, Arizona.
- January 14-15—Arizona Horse Lovers Club Junior Horse Show, Phoenix, Arizona.
- January 21—Palm Springs, California, Desert Museum field trip to Little Paradise in Palm Canyon.
- January 22—Dons Indian Ceremonial Dance program, Phoenix, Arizona.
- January 22—Junior Chamber of Commerce King's Canyon Trek, from Mesa, Arizona, Civic Center.
- January 23—Fiesta and Buffalo Dance, San Ildefonso Pueblo, New Mexico.
- January 26-27—Southeastern New Mexico Hereford Show and Sale, Roswell, New Mexico.
- January 26-29—20-30 Club Junior Rodeo, Mesa, Arizona.
- January 27-28—Annual Western Dance, Clayton, New Mexico.
- January 27-29—Gold Rush Days, Wickenburg, Arizona.
- January 28-29—Dons Travelcade to Prescott - Flagstaff - Sunset Crater, from Phoenix, Arizona.
- Month of January—Hanwood Foundation Free Winter Art Exhibit, Taos, New Mexico.



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Jasper at Old Sodaville

But for the greed of the man who controlled the water supply, Sodaville, Nevada, might have been a thriving community. Instead—Sodaville today has only its ruins and its memories. But it also has a good water supply, a million-dollar expanse of blue Nevada sky—and some nearby bajadas where the rock collector may find some colorful stones for his lapidary.

By HAROLD O. WEIGHT
Photographs by the author
Map by Norton Allen

THREE AND A HALF miles south of Mina, Nevada, Carl Sullivan waved at the small hill to the east of the highway.

"There's the old Sodaville jail," he said.

At first glance it seemed just an untidy heap of debris, accidentally topped with a tangle of wood and sheet metal. But when we left the car and walked closer we made out crude walls, either of rammed earth or of very primitive adobe brick, completing a one-room structure half dug into the slope of the hill. In its prime, present day penologists would have looked upon it as a sort of Black Hole of Calcutta.

Stopping just outside the gaping doorway, Sully picked up some small

rocks and threw them into the dusky interior, listening carefully as each landed.

"That's my rattlesnake tester," he explained. "I always use it on old buildings or tunnels. If you don't get a buzz in response, it's pretty safe to go in — as far as reptiles are concerned."

From the floor of the little ruin he lifted a massive piece of planking to which a big hinge still clung.

"Part of the old door. When that thing was shut and locked, this was a pretty good jail. It held some hard and rugged customers. In fact, the only jail break I remember was due to outside help," he said.

"The man responsible still lives in Mina. When a friend of his was locked

in here one Saturday night, this fellow just got a good strong bar and broke the lock off. He explained his reasons to me later. 'Why, that boy was just doing a little friendly fun-raising 'round town,' he said. 'Nothing mean about it. Now that ain't sufficient reason to lock up a Nevada mining man. Fact, I doubt if it's constitutional!'"

Sully shook his head. "That must have been all of 40 years ago, when there still was some real life in Sodaville. Now—" he shrugged his shoulders.

Highway 95 cuts only the outer corner of old Sodaville. The heart of the community lies to the south and east of the jail around the hill. But time and fate have dealt almost as unkindly with it as with the jail. Most of today's motorists whisk by without identifying it or even suspecting that half a century ago it was the roaring gateway to the new strike at Tonopah and one of the most important towns in Nevada. Its history stretches unbrokenly back to the 1880s when its big mill processed ore from the fabulous silver camp of Candelaria.

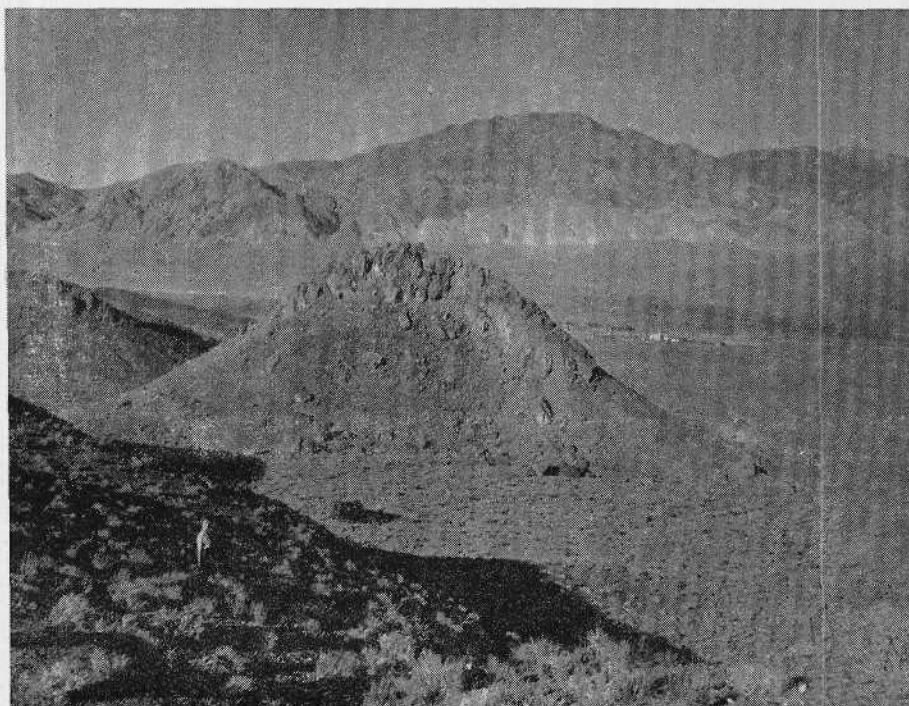
Lucile and I had been interested in Sodaville since we garnered the first fugitive scraps of its story from our friends among the Nevada oldtimers. But not until a few years passed, during a visit with Grace and John Callahan at their home in Columbus ghost town, 15 miles south of Sodaville, did we learn that the area might hold other attractions.

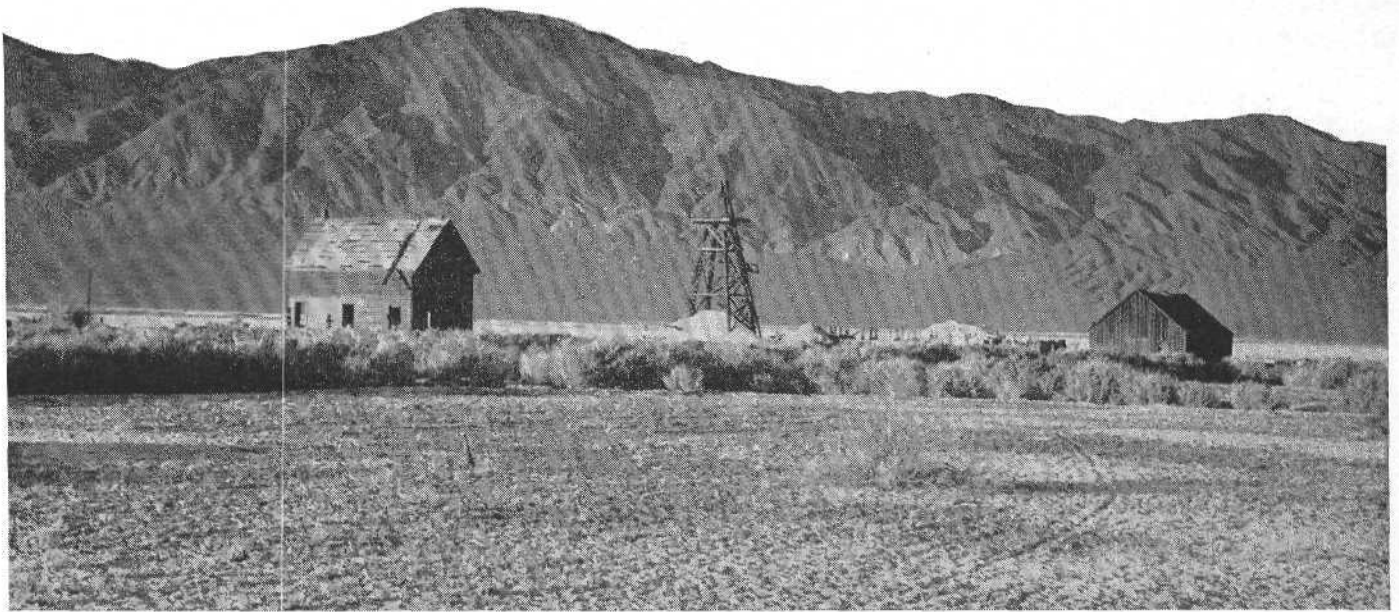
"You'll find an old road slanting southwest from the highway there," Grace Callahan told us. "Go about a mile out on it and do a little hunting in the washes draining the mountains to the west. We saw some pieces of bright red jasper float in there a long time ago but we never have had time to follow it up."

It's almost a basic tenet with rock-hounds and prospectors that the more distant and difficult fields are bound to be richer. So on the infrequent occasions we passed through Sodaville in the next few years, we were on the trail of more obscure rocks and history beyond. Each time, we remembered Grace's suggestion however and agreed that some day we would explore the Sodaville jasper fields.

Then one scintillating May morning we approached Sodaville just as the sun came up over the ragged eastern ridges. The great bajada to the west—spotted with salt bush and Lycium,

The jasper is found on and below the steep slopes and buttes of the eastern end of the Excelsior Mountains. In the valley below (right of butte) lies the old town of Sodaville on Highway 95, once the roaring gateway to the Tonopah boom. Still farther east beyond Sodaville, rise the Pilot Mountains.





Rhodes Salt Marsh, one of the earliest places in Nevada where borax was refined, lies south of Sodaville. These buildings date back to the days of the narrow-gauge railroad. The marsh also supplied much of the salt used in roasting non-free-milling silver ores in Nevada's early days.

and jeweled with blooming wine-purple indigo bushes, desert plumes, apricot mallows, cream evening primroses and the less conspicuous Fremont pepper grass, small blazing stars and tiny purple Phacelias — lifted gently and invitingly to the glowing buttes and ridges of the Excelsior Mountains. Almost opposite us a dirt road, which might well be the one Grace Callahan had described, slanted across the slope.

I swung the car across the highway and we headed up the old road.

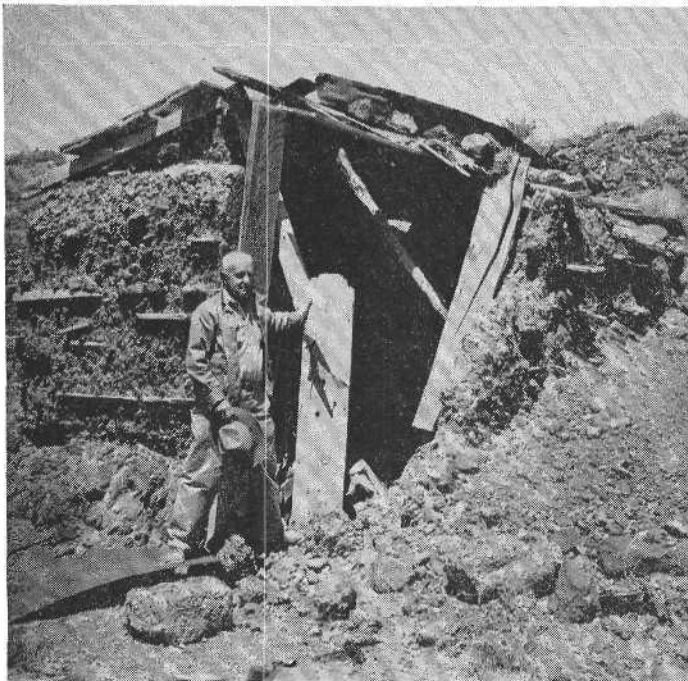
It took half an hour's wandering to prove it was the wrong road, but the time was not entirely wasted. Almost immediately we saw dark pieces of jasper, although most of them proved to be too coarsely grained or with pinholes filled with red ochre. Then I discovered something Grace had not

mentioned — a small piece of white and dark opalized wood.

Later on a side excursion along a seldom-used wash-cut pole line road, we were attracted by large light colored boulders, different from the surrounding rock. The boulders proved uninteresting from a rockhound's point of view, but running among them we found narrow veins of an odd cherty material in pale pinks, whites, yellows

Carl Sullivan at the ruins of the old Sodaville jail, holding a heavy plank that once was part of the door. With the hillside forming part of the walls of this one room lockup and solid rock and adobe the rest, it was almost escape proof.

Ruins of the old Mt. Diablo silver mill at Sodaville, which dates back at least to the 1880s, and was the town's first big industry. Ore was hauled down on the Carson & Colorado narrow-gauge from the nearby camp of Candelaria.



and browns, with occasional spots of black "ferns." Most of it was too coarse or too fractured to cut, but some pieces, almost of opalite, promised unusual and colorful cabochons.

Our pole-line expedition ended where the road did—with a roller-coaster dive into a deep wash and an equally steep climb to a pole on a ridge. We returned to the highway and followed it to Sodaville. On the west side of the highway opposite the turnoff to the old town, we saw a broad road slanting back toward the Excelsiors, which undoubtedly was the one Grace had told us about. We followed it for about a mile and then, in four-wheel-drive, went up a shallow wash to the west. In another half mile we reached the end of wheeled travel in a small valley among the buttes at the base of the mountains.

Even before we stopped the car and started hiking we knew that Grace's tip had been a good one. Along the way we had seen big chunks of yellow and red jasper. On foot we discovered large quantities of it—some in patches on the soft slopes, some in the solid rock of the narrow canyon walls, some spilling down from eroded ledges on the hill tops.

Most of it was in dark patterns of red and browns, but there were quantities of bright yellows and reds, and some pieces with mixtures of reds, yellows, reddish purples and narrow chalcedony inclusions which compared well with the colorful jaspers of eastern Utah. We also found small amounts of patterned and mossy reds, browns and chalcedony, which would cut into spectacular stones. And there was one boulder of jasper which showed vugs with fine little quartz crystals.

We came upon scattered patches of jasper on the rugged ridges. The same wild flowers bloomed here as below, and in addition the Grizzly Bear cactus, *Opuntia erinacea*, blossomed lavishly, its lovely light yellow flowers still were yielding nectar to little winged collectors. And when we paused for breath on one of the heights—the base of these mountains are nearly 5000 feet above sea level—we were rewarded with magnificent panoramas across Soda Spring Valley to the towering Pilot Mountains, and across the great shining bed of Rhodes Salt Marsh to the Monte Cristos and beyond.

We collected a variety of the jasper and then headed back down the bajada, stopping here and there as bright bits caught our eyes. At a spot opposite the base of the easternmost butte, Lucile made the prize find of the day—more petrified wood, three agatized pieces in brown and yellow, with dark red dots. We searched almost until dark, but could not find another scrap,

nor a likely looking formation from which it might have come.

Most petrified wood in this part of Nevada originates in beds of ancient clays and volcanic ashes which were laid down under the waters of vanished Lake Esmeralda. Possibly the specimens we found came from an exposure of such deposits back in the Excelsiors. But it is equally possible the pieces came to the surface in the washes from formations that are lightly buried in the bajada under the outwash from the eroding mountains. We hope to be able to devote more field investigation to that problem in the future.

We spent that night in Mina and in the morning drove to Luning to pick up our friend Sullivan, and headed back down to learn what we could about Sodaville. After our stop at the collapsing jail, we rounded the hill and took the turnoff from the Highway to the old town, beside the shining bulk of the Sodaville Tungsten Mill. The mill—operated by the Sinkeys, father and son, and milling custom ore—was the principal structure and the only industry when we were there.

Sully guided us to a weathered, vine-covered building where Lucelia Towner, one of Sodaville's oldest residents lived. Mrs. Towner owned most of the town and millsite—over 300 acres—from the 1920s until she recently sold it to the Sinkeys, retaining the right to live in her frame house which also dates back into Sodaville history. On that quiet porch during the next half hour aided by Mrs. Towner and Sully and the information we had gathered from many sources, we tried to reconstruct the old town's story.

From the very beginning, Sodaville's abundant water supply singled it out for future importance. From the construction of the Carson & Colorado in the early 1880s, its life and good and bad fortune had been inextricably bound with railroads. The Carson & Colorado, a three-foot narrow-gauge, was the pet project of U. S. Senator William Sharon, once called "King of the Comstock." Sharon built the C. & C. because he believed mining and agricultural development along its route would supply freight which would make up for the steadily decreasing business his Virginia & Truckee Railroad was obtaining from Virginia City.

When the line was completed to Keeler, east of Lone Pine, California, Sharon took his business partner, Darius Ogden Mills, for a ride over the full length of track. It was Mills' first look at the C. & C., and he seemed notably depressed as the little train rocked for two days through the open spaces of the Nevada-California border, which remain sparsely populated

even today. At Keeler, Sharon eagerly asked his partner's opinion.

"Gentlemen," Mills answered, according to Western folklore, "we built it either 200 miles too long or 200 years too soon."

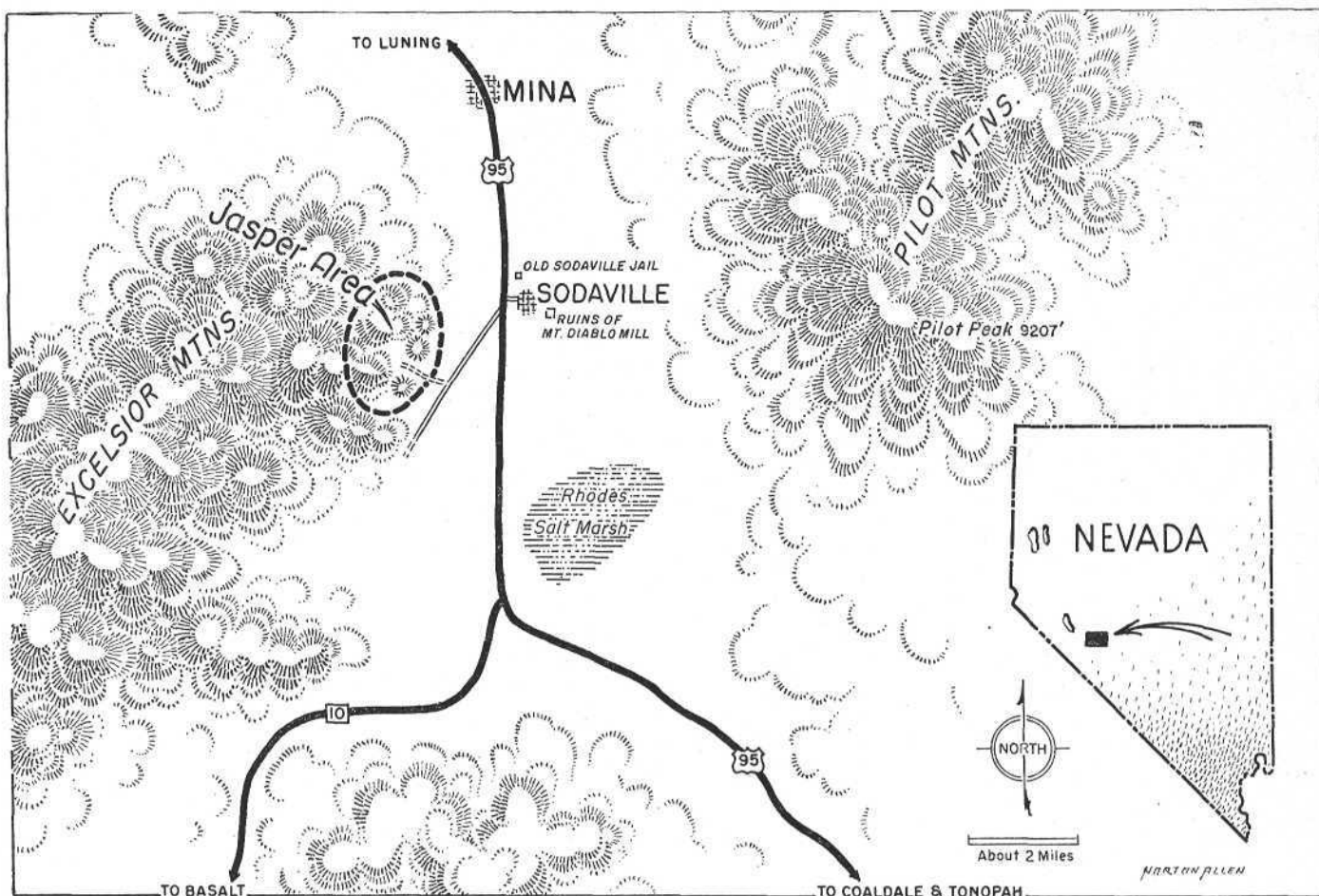
Sodaville undoubtedly was included in that "too-far, too-soon" region, but it and nearby Rhodes and Candelaria gave the C. & C. far more business than most of the line. Rhodes Marsh shipped borax, made from "cotton balls" the Paiutes harvested from the dry lake, and great quantities of salt that went to the silver mills of the state to help oxidize sulfide ores that had to be roasted before processing. Candelaria's water had to be piped in, and therefore its big mills were scattered around the area. The Mt. Diablo mine established a mill at Sodaville and ore was shipped on the narrow-gauge.

But with discovery of other borax deposits, the demonetization of silver and the increasing cost of mining lower grade ores at Candelaria, all these activities ground to a halt. The C. & C. kept struggling until 1900, then the Southern Pacific bought it from Mills—Sharon having died—for \$2,750,000. That year the tremendous mining boom at Tonopah got under way—and Sodaville was the nearest railhead.

The narrow-gauge, renamed the Nevada & California, immediately started showing profit. For four years Sodaville had more business and excitement than it could handle. Great freight wagons grooved the dusty trail across the Monte Cristos from Sodaville to Tonopah day and night. Still freight piled up around the siding while storekeepers and saloon men and mine and mill representatives begged, ordered and bribed to have their shipments handled first. Stage lines ran several coaches a day on the road—big Concords designed to carry a dozen passengers were always overloaded. This—the best available means of transportation—must not have been pleasant, for one traveler complained that he had to use a shovel to discover which passenger was his wife on arrival at Tonopah after the dusty ride. Those unable to obtain even this passage went on horseback, on freight wagons, on foot. A way station reported feeding over 200 people a day during one period.

"Bob Stewart was just about Mr. Sodaville in those days," Mrs. Towner remembered. "He located the whole townsite originally and owned the hotel, mill and the springs. He had freight lines and stage lines running to Tonopah, and he drove the freight teams himself."

The Tonopah Railroad—to become the Tonopah & Goldfield later, or the



"Tug and Grunt" as the local inhabitants called it—was completed in July, 1904, and Sodaville's business boom was smashed. Culverts along the new road, designed by eastern engineers, were too small for Nevada flash floods, and almost as soon as it was opened miles of track were washed away, and Sodaville had a brief revival.

Later, Sodaville had a chance for permanence — and muffed it. M. C. Sinnott, who has seen a lot of history happen in this country, told us about that sad event the night before in Mina.

With the Tonopah road branching at Sodaville, the Southern Pacific, in 1905, planned to make the place one of its principal stations and supply points. But the company wanted to be certain of a sufficient water supply. Sodaville had plenty of good water—a big spring up in the Pilots—and the Southern Pacific offered to buy it for \$35,000. Before the deal could go through, another party optioned the spring and upped the price to the railroad to \$70,000. The Southern Pacific promptly moved a few miles up the valley, drove wells down to 700 feet to water, and created the town of Mina.

"Incidentally," Sinnott added, "several years later the town of Mina bought that \$70,000 spring for \$10,000. By that time Sodaville was off the map."

"I guess they gave up hope about 1915. They started moving the houses out then," Mrs. Towner told us.

Lucelia Towner has spent most of her life in mining camps and towns, from the Mother Lode to Rawhide. Sitting there in the old willow chair,

she recalled places and people now long gone. Always, though, her thoughts came back to Sodaville. Once she caught my eyes on the collapsing wooden frame of the old bath house. Sodaville's hot mineral baths had been the town's big attraction for many

"I've always dreamed of a big swimming pool here, and a ranch for tired city people," says Lucelia Towner, one of Sodaville's longest-time inhabitants and until a few years ago owner of the 300-acre townsite.





When Sodaville, Nevada, was the roaring gateway to the Tonopah boom, this wagon and hundreds like it carried supplies from the railroad to the mine camps.

years. They had been in operation on my first visit to this area.

"Bob Stewart built that, too," she said. "In 1905. The pool ran until two years ago, when the Sinkeys took over. I think it should be running now."

She looked up at the spectacular wall of the Pilots, her eyes brightening. "I think Sodaville still has a future," she said. "All that good water. All this wonderful air. Mountains like that at our door, and high enough to avoid the heat of summer. I've always dreamed of a beautiful big swimming pool there on the knoll and a big, quiet ranch for people who are tired of the city. A dude ranch, I suppose you'd call it today. I'll bet they would come from all over the country."

After we left Mrs. Towner's home, Sully guided us through the remnants of old Sodaville to the ruins of the Mt. Diablo mill, half a mile to the southeast near the once-crowded Tonopah freight road. Built of rough stone, without mortar, the big walls stand astonishingly well after nearly three-quarters of a century. It was Sodaville's first big industry, and was still paying off in 1948 when the tailings were shipped to the Selby smelter.

From the hill above the mill a tremendous view spread out before us. I could see the Excelsiors, and the bajada and the buttes where we had hunted jasper the day before. To the southwest I looked across the newly paved highway to Basalt, running between the Excelsiors and the Cande-

laria Hills, following the roadbed of the old narrow-gauge, dismantled in the late '30s. To the south and east I could follow the right-of-way of the Tonopah and Goldfield, which was reactivated by World War II, but whose rails were pulled up only a few years ago. Looking back at Sodaville I saw the half-wrecked bath house, sprawled grotesquely against the alkali-white soil. Beyond, to the north, lay Mina, the town Sodaville might have been. The old town did indeed seem abandoned, with the shining tungsten mill its only hope for survival.

But there was nothing dead or ghostly about this place. The bright sunlight poured down on me from the sheer blue of the Nevada sky, and there was sharp, clean air to breathe. It stirred and drifted around me, and I felt peace drifting with it. I found myself looking up at the Pilots with eager eyes, as Lucelia Towner had looked at them. Tracing out the outlines of "Old Elephant Head" along the north point, as she had done. Picking out the red canyon which "should" have gold, where she had always wanted to go and never had. I wanted to stay in Sodaville and go up that canyon, too.

And I wondered if perhaps she was right. If—like the Carson & Colorado—Sodaville had been built too soon and too far away from its real destiny? A destiny that may be realized in the future as more and more individualists probe farther into the outlands for temporary escape from the deadly embrace of the new city-states.

PUBLIC INVITED TO EXHIBIT OF CAROLUS VERHAEREN ART

The art of Carolus Verhaeren will be displayed at the Desert Magazine Pueblo Art Gallery, Palm Desert, California, January 8 to 14.

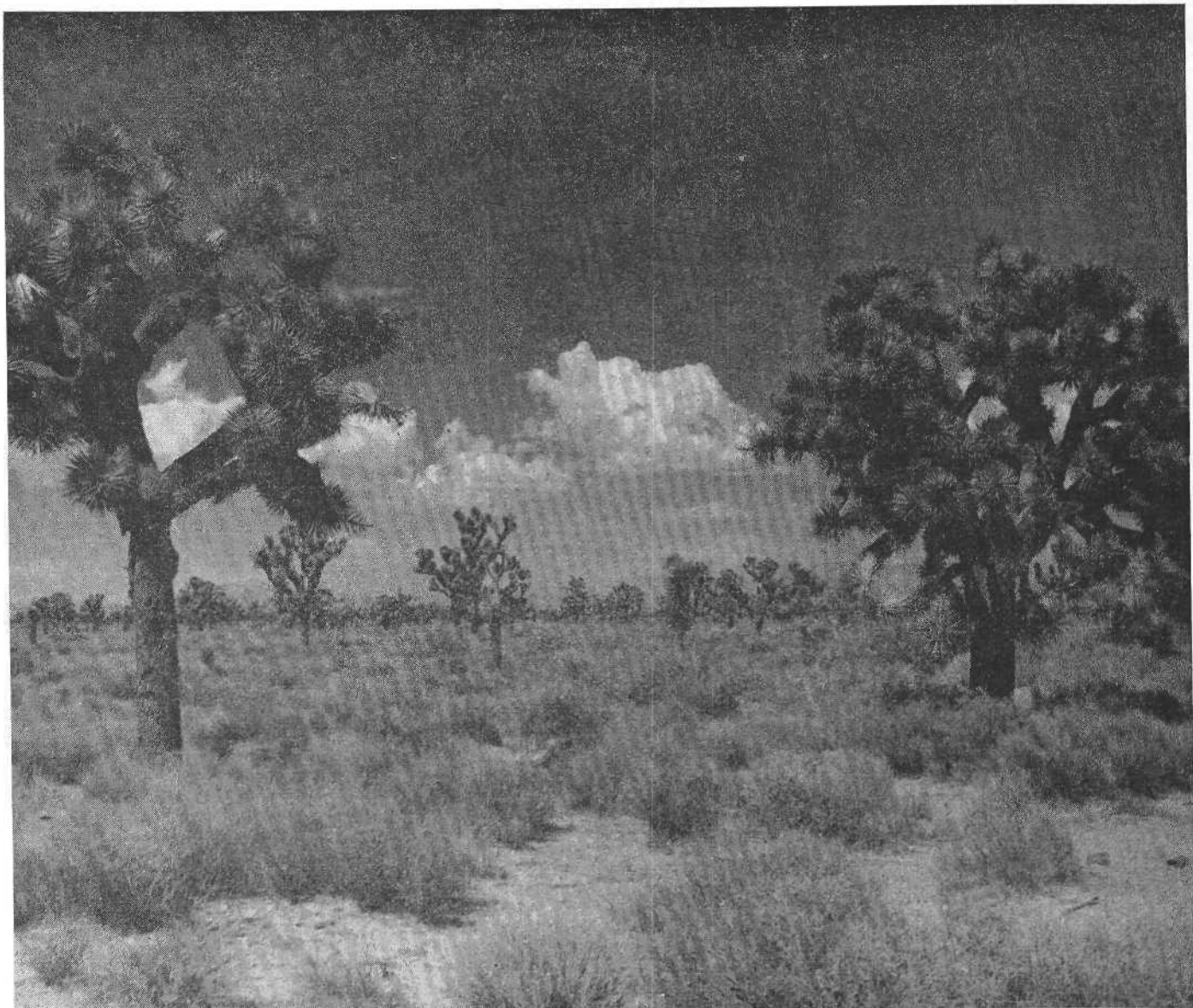
Mr. Verhaeren's exhibit will feature the Navajo Indians of Arizona. The artist is a former resident of the Gap Trading Post, Arizona, where he was able to observe the Indians and their way of life. The show will include landscapes from the Palm Desert and Borrego Valley areas.

Mr. Verhaeren was born in Antwerp, Belgium on June 18, 1908, and began his career as an apprentice at the age of 13. A year later he came to America and then to Canada where he studied portraiture under the French portrait painter George DeVore.

At 19 the artist began a 16-year career as a portrait painter and then turned to landscapes, developing, as he did, his use of the palette knife in painting. He is regarded by many critics as the outstanding master of the palette knife technique.

Mr. Verhaeren has exhibited widely in many cities of the world. Since moving to the west he has exhibited at the de Young Memorial Museum in San Francisco where he won first and second prizes in the annual Society of Western Artists shows.

The public is cordially invited to attend Mr. Verhaeren's show in Palm Desert. There will be no admission charge and the gallery is open seven days a week from 9 to 5.



Joshua Trees on California's Mojave Desert. Photograph by Cal Godshall, Victorville, California.

Weird Symbol of the Mojave

The sturdy Joshua, with its twisted and bizarre form, has made a remarkable adaptation to the high desert country on which it thrives. But, like many other distinguished but aloof denizens of the desert, there are a few "facts" concerning it which are in need of slight revision, and quite a few others which are not generally known.

By NORMAN C. COOPER

Professor of Education
University of Arizona

7 HERE ARE MANY striking and unusual plants in the Desert Southwest which have assumed curious shapes and forms to cope with the climate, soil conditions, and hungry animals for survival. The myriad

types of cacti, the crucifixion thorn, mesquite, catsclaw and creosote bush all greet the traveler from the East as he moves along the highway through our desert but the most curious form of desert plant life to me is the Joshua

Tree. The plant has lived on the desert a long time and has adapted itself perfectly to its unfriendly environment. It has developed root and leaf systems which conserve the small amount of available moisture and has masked itself with a formidable exterior which wards off its gravest enemies. It thrives at an elevation between 3000 and 4000 feet on the high desert where 5 to 10 inches of rain fall each year.

The Joshua is a tree lily, the largest lily in the United States, sometimes reaching a height of 35 to 40 feet. It blooms in March and April and has a panicle of greenish white flowers oblong or globose crowded on a stalk 10 to 15 inches long. The flower is a true lily. The fruit is hard, globose



Joshua seed pods. Photographed by Helen DuShane, Pasadena, California.

and filled with many shining black seeds.

I have found the trees growing on the arid mesas, the plains and valleys running through the desert and even on the lower mountain slopes, rocky benches and low mountain plateaus in the dry sandy or gravelly soils. The Joshua Tree grows only on the Mojave Desert. Its boundaries approximate pretty well the boundaries of the Mojave. The trees extend from the lower boundary of the Joshua Tree National Monument on the south, north through Antelope Valley to central Nevada and east into the Beaver Dam Mountains of the southwest corner of Utah and south into the Detrital Valley of northern Arizona.

It is a sturdy tree with a columnar trunk which in some instances attains a diameter of three and one-half feet. Young trees are covered with a bushy growth of green upright leaves in the

upper portions and a mat of dead recurved leaves on the lower parts. Older trees have an exposed dark brown bark on the lower trunks checked into small squares or plates. Leaves are only six to eight inches long and about one inch wide. They are flat, rigid, and sharp-pointed and have a row of small teeth on each margin. The stiletto-like leaves densely cover the arm-like branches, reminding me of giant porcupines with spread quills.

Smaller roots of the Joshua Tree are red in color and are prized by the Indians for pattern making in their basket weaving.

The branches of the older Joshua Trees are covered and bent at sharp angles making the tree a bizarre, wild looking spectre. Branching is caused in two ways. The terminal bud may stop the growth of the branch causing it to bifurcate; or the terminal bud may be invaded by the yucca borer and

eaten away causing the lateral buds to form side branches. A well formed tree has a broad symmetrical crown.

Joshuas are not as old as is generally thought. They are far from the oldest living things on earth. The Giant Sequoias of the High Sierras are the oldest living things in existence. They live to be 3000 to 4000 years old while the Joshuas live only 300 to 400 years.

The Joshua Tree was named by Mormon emigrants who came west into California in 1846. When they entered the Mojave and saw the stark, gaunt trees against the clear blue sky, these curious forms had neither common nor scientific name at that time. One unknown man referred to them as "standing like Giant Joshua with its arms uplifted in prayer." Since then it has been called the Joshua Tree. Since it is a lily and a yucca its scientific name is *Yucca brevifolia*, so named in 1871 by Dr. George Engelmann, a German botanist living in St. Louis. I am sure the name Joshua Tree is much more widely known and no doubt will continue to be used.

Another myth concerning the Joshua is that it grows only on the Mojave and in the Holy Land. It does not grow in the Holy Land. It is endemic to western North America and grows only on the desert of California, Nevada and Arizona.

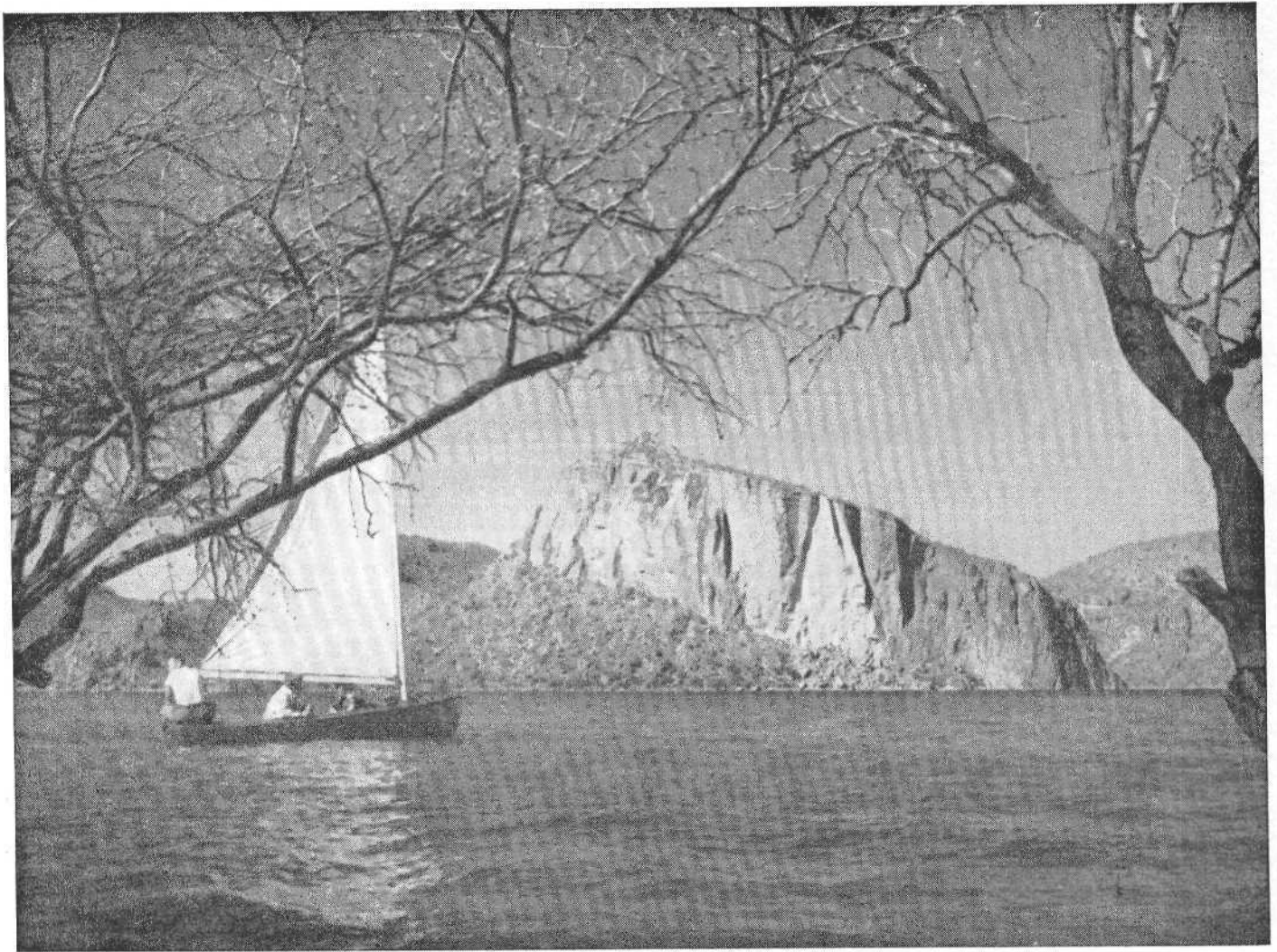
Desert birds nest in the trees and the woodpecker drills holes in it. Wood rats gather its leaves and make nests of them and the night lizard lives among its dry protective leaves and under the edges of flaking bark.

The tree is hard to propagate from seed. It is such a slow growing tree one could not hope to grow it either for shade or ornamental purposes in a lifetime. The middle-aged trees transplant fairly easily but it is against the law in most instances to remove them from their native habitat.

The 850,000-acre Joshua Tree National Monument in Southern California was set aside in 1936 by President Roosevelt to conserve this rarity of nature and to protect it forever from vandals, and the westward onrush of population growth.

A movement is currently underway in the Antelope Valley for the creation of a state park to embrace the finer stands of Joshuas found there.

The Joshua Tree is a weird denizen of the dry wastelands of the West and stands as a sentinel and a sage, recalling the hardships of the early explorer and pioneer and reminding us ever of staunchness and bravery and the other virtues of our forbears who pushed into the West, making it possible for us now to enjoy this great land of our heritage.



Sailboat skims across Canyon Lake, rimmed by magnificent desert cliffs.

On the Modern Apache Trail

By THOMAS B. LESURE
Photographs by the author
Map by Norton Allen

NO MATTER how many times I drive over the Apache Trail it never fails to fascinate me. For this 80-mile long road, snaking through deserts, rugged mountains and steep-walled canyons east of Phoenix, Arizona, symbolizes and personifies the very heart of the Southwest.

It symbolizes — in Indian caves, cliff dwellings and lost gold mines—centuries of colorful Indian, Spanish and American pioneer lore. In its quiescent deserts and majestic far-flung mountain panoramas, its joyful outdoor recreation, its primitive wilderness areas, its beauty of varied flora and lore of mineral rocks, the Apache Trail is the epitome of things Southwestern. But, more important—espe-

Indians, Spaniards and pioneer Americans battled each other and the uncertain rainfall in the Apache Trail country. The marks they left behind are still visible to the modern traveler who today finds the Trail a delightful passage through a beautiful and rugged wilderness bordering a chain of man-made lakes.

cially to Phoenix and the Valley of the Sun—it embodies the essence of man's triumphant struggle to create a rewarding, comfortable life from barren desert wastes.

Along the Trail, which closely follows the rambling Salt River, the Salado Indians—living in brush and mud huts and later in pueblo-like cliff dwellings—eked out an existence more than 700 years ago by tilling the uncertain river bottoms. To their south the Hohokam, early masters of irrigation, constructed canals and ditches that brought precious water to their fields. But their crude efforts were unable to support more than 50,000

people before the problems of drouth and a rising water table drove them from the land. Even as late as the mid-1800s, the Valley of the Sun was largely an unsettled, unproductive wasteland.

Today, as a result of modern irrigation, more than 368,000 persons live in a now fertile area that produces crops valued in excess of \$33,000,000 annually.

Behind this tremendous growth is the Salt River Project, started by visionary pioneers who, trying to stretch the Valley's 7.72 inches of average rainfall to meet their growing water needs, took advantage of the provi-

sions of the Reclamation Act of 1902. First one dam was built, then another and another and another—until now seven dams grace the Salt and Verde Rivers. With a total storage capacity of 1,754,335 acre feet along the Salt River—plus another 322,378 on the Verde—the Salt River Project now supplies water to irrigate more than 241,000 acres of fertile land. Without these dams, which also generate 191,000 horsepower of electricity, Phoenix—as we know it today—would not exist.

The problem of water is still a major one in Arizona, and recent shortages and scanty rainfalls have not helped the situation.

Officials, however, are not content to wait for Nature to provide. The Water Users' Association has led the way in experimenting with artificial rain making devices. New and more efficient methods of irrigation have been developed. And the mechanics of water delivery are constantly being improved to prevent loss by evaporation and seepage.

It is an old story—this one of man, water and land—but it is also as new as tomorrow. In its broadest scope it is the story of the Apache Trail, from prehistoric times to the present.

Recently, my wife, Nancy, and I once again got the urge to experience the thrills of this drive by making a one-day, 200-mile loop trip over the Trail from Phoenix to Miami, thence back via Superior and Florence Junction. It was a perfect desert country day—sun-filled and diamond-bright with a gentle, relaxing breeze—as we headed our station wagon eastward from Phoenix on U.S. 60, 70. An hour later, after passing the edge of irrigated farmlands and citrus groves where the sun-blached desert suddenly and vividly encroaches—we arrived at Apache Junction, start of State Route 88, the Apache Trail.

Off to the right, as we turned north-eastwardly onto the Trail, stood massive, 5057-foot Superstition Mountain, rising abruptly from the desert floor like a brooding giant guarding the fastness of one of the Southwest's most primeval and mysterious wilderness areas. Once the haunt of marauding Apaches and Spanish gold seekers, it is now the supposed location of the fabulous Lost Dutchman's Gold Mine found by Jacob Walzer. Many attempts have been made to find this legendary lode but all have ended in failure, some in tragedy. As late as 1947, James Cravey disappeared in the mountain's

vastness while looking for the mine. His skeleton was found a year and a half later.

Swinging around the eastern edge of Superstition past the old mining town of Goldfield, we entered Tonto National Forest where the cholla, palo verde and saguaro growth is dense and where, far to the right, we caught occasional glimpses of monolithic Weaver's Needle, a prominent landmark in the lost mine story.

For the next seven miles we roller-coastered through jumbled rocks and huge sandstone boulders covered with lichens. Suddenly the foreground dropped away to reveal a breathtaking view of cliff-rimmed Canyon Lake several hundred feet below.

Formed by 229-foot high Mormon Flat Dam, Canyon Lake is the Trail's first introduction to the 60-mile-long chain of man-made lakes along the Salt River. Stretching for 10 miles, the lake is a favorite outing spot for residents of the Valley of the Sun who like to bring their boats there on two-wheeled trailers or enjoy all-day outings among palo verde and mesquite trees that dot the shore. On this trip we found the Canyon Lake Picnic Ground, not far from Willow Creek Bridge, a very relaxing and lovely spot



to eat a picnic lunch and watch the parade of speeding motor boats.

The opportunity for boating is the big attraction of this lake. A few sportsmen, who can rent boats or bring their own, angle for bass and panfish, but the fishing is unpredictable. Most fishermen prefer Apache and Roosevelt Lakes, farther up the Trail, where the bass are big and biting. Licenses cost \$5 for non-residents; \$3 for non-resident five-day permits; and \$1.50 for residents. They may be secured at Canyon Lake Resort. Bass limit, with no closed season, is 10 a day or in possession.

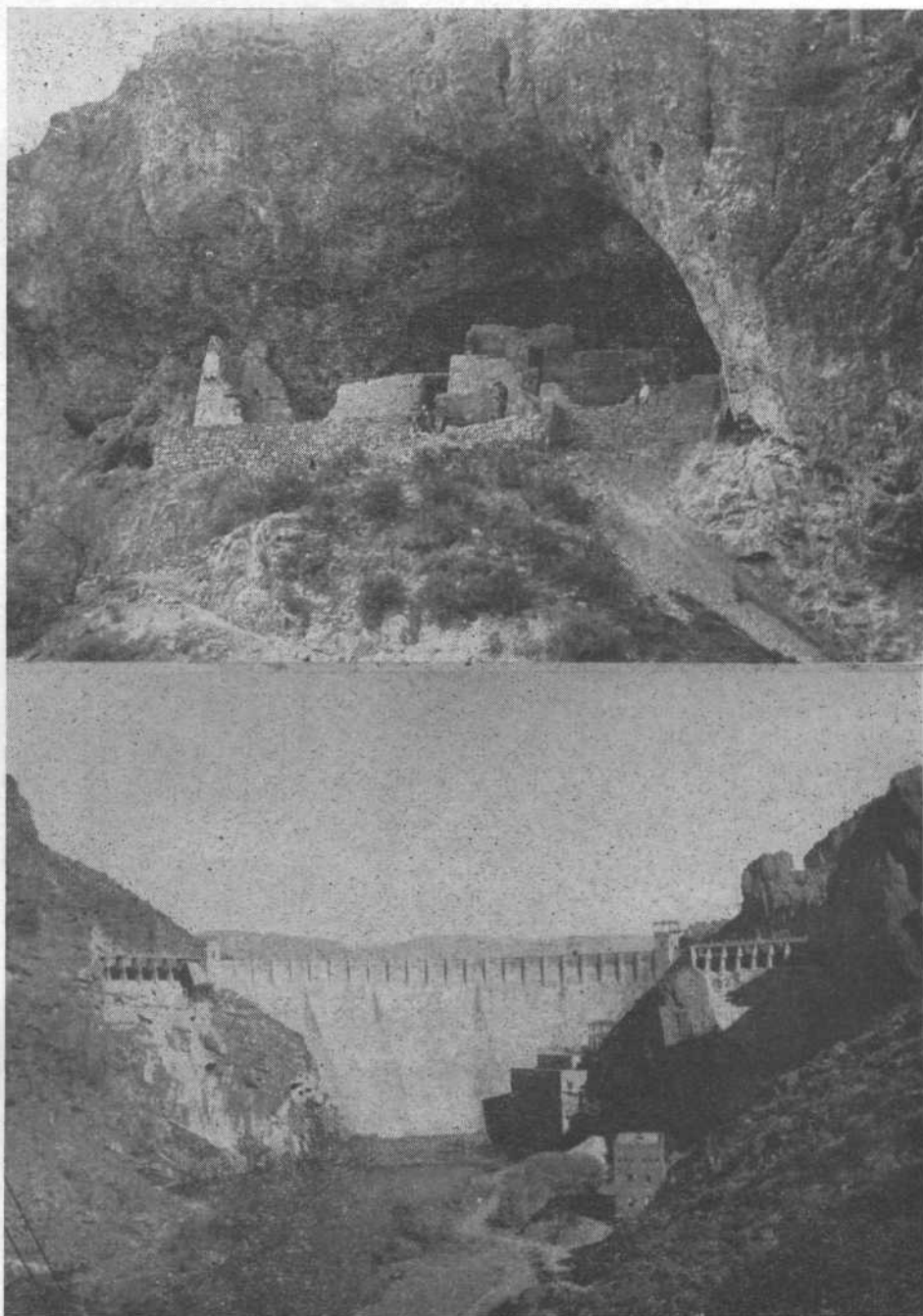
Reluctantly leaving our picnic site, we passed the "Port of Phoenix" (fishing supplies, cafe, gasoline and outboard motor tune-ups), then twisted upward again over a good, graded dirt road. This portion of the Trail is now under construction and will eventually be paved as far as Tortilla Flat, an old stage and freighter station set in a small amphitheater rimmed by pancake-like formations.

We stopped at Tortilla Flat to talk with Jerry Stepan who, with his wife, Emily, runs a gas station, restaurant and kitchenette apartments. When we asked about the possibilities of rock hunting along the Trail, Jerry brought out a cigar box filled with specimens and called his son, Dick, to identify them for us.

Dick began by explaining that "while the area is very rough for rock hunting, the collecting is varied." He added that interesting rocks as well as Indian arrowheads and pottery shards can be found all the way from Superstition Mountain to the Four Peaks. What's more, there are Indian caves scattered throughout the area, one of the most interesting being about five miles from Tortilla Flat where a well-preserved mummy is sealed in a cliff-side crevice.

Taking up the rocks — which he called surface pickings—Dick showed us samples of manganese, low grade copper, mica, quartz, iodized iron and iron nuggets, cinnabar, tourmaline, sodaspar, perlite and topaz, all of which he found near the Trail. But he pointed out that "most of the best rock hunting areas are one-half to five miles off the Trail and are available only about five months of the year because of summer heat and lack of water."

Past Tortilla Flat, the Trail curved upward again, passing even more impressive vistas of distant mountains and nearby, tight-walled canyons. Five more miles brought us to a road on the left which led to Horse Mesa Dam which forms Apache Lake. Near the dam is a canyon-walled cave where U. S. troops and Apaches fought the



Above—Masonry of the ancients—the cliff dwellings being preserved by the U. S. Park Service in Tonto National Monument.

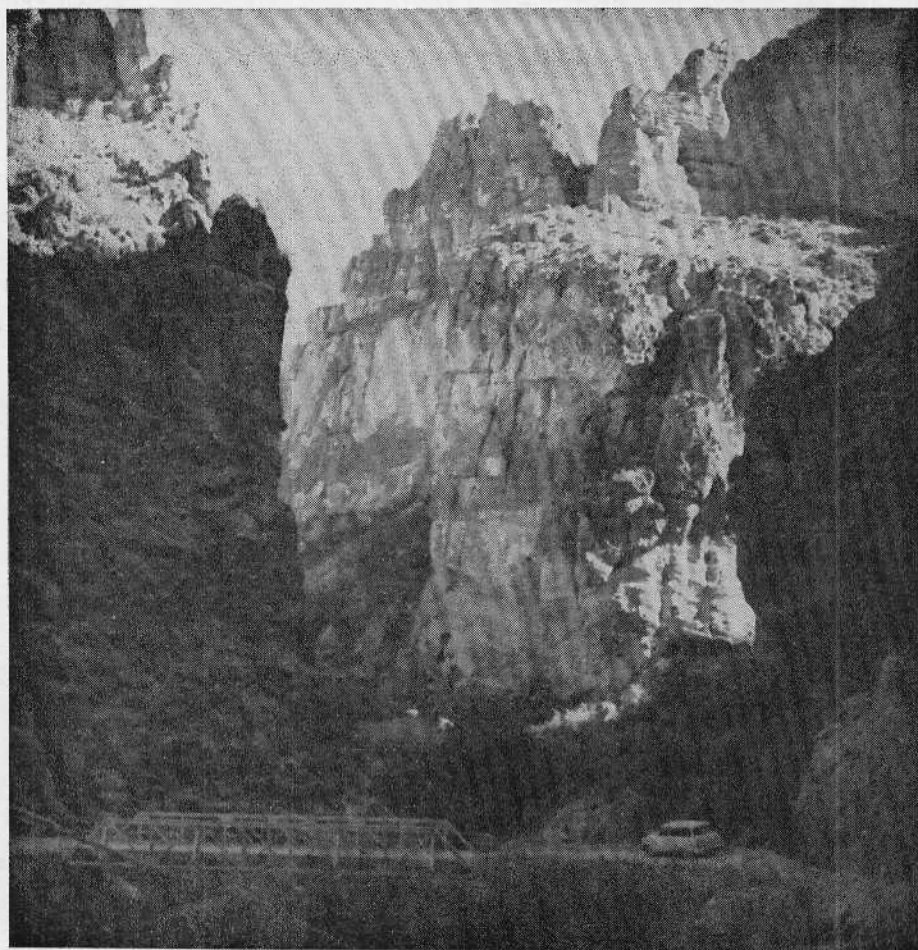
Below—The masonry of today—Roosevelt dam, once the largest stone and cement dam in the world, and the source of water for Salt River Valley farmers.

"Battle of the Caves," in 1872, one of the strangest affrays ever staged in Arizona.

Five miles beyond this junction we crested Fish Creek Hill where the whole foreground suddenly vanished, revealing the massive, vividly colored formations of Fish Creek Canyon. Vertical, moss-sheathed rock walls, looking like giant sheets of aging bronze, rose 2000 feet above the labyrinthian canyon bottom. And grotesque rock temples, carved by wind and

water, reared skyward out of the depths.

The view from the top was breathtaking—surpassed only by the hair-raising drive down the snaking Trail that clings to the precipitous walls of Fish Creek Hill. It was a motoring relief when we finally reached the bottom near a box-like canyon splashed with green sycamores, cottonwoods, willows and Arizona ash that line Fish Creek in the Superstition Wilderness Area.



Fish Creek Canyon where the Apache Trail crosses Fish Creek.

Soon the canyon was behind us and we drove over a smaller hill which gave us an excellent view of elongated Apache Lake, only a mile away. This lake, with its rock slides and talus slopes that rise steeply to the high buttes and terraced mesas of the 7600-foot Mazatzal Range, is a consistent producer of big, prize-winning bass. There are boats and cabins available for fishermen.

The Trail follows the lake for about 14 miles — past a forest camp, the Burnt Corral Recreation Area and old mine workings — to Roosevelt Dam, the granddaddy of all the Salt River projects, situated in a tight canyon near the confluence of the Salt River and Tonto Creek.

The dam is almost 300 feet high and more than 1100 feet across on top. It was dedicated by President Theodore Roosevelt in 1911 and was, at the time of its construction, the largest in the world. It is still the world's highest masonry dam. All concrete and stone for the dam were obtained locally and a regular construction camp — the remains of which still may be seen — was built.

Roosevelt Dam, largest in the Salt River Project, forms the biggest lake — two-mile wide, 30-mile long Roose-

velt Lake. Beneath its surface, not far from the dam, is The Crossing, an old farming and ranching settlement whose water-logged structures are sometimes visible when the lake is low. In the background, rising in hazy-blue and light purple terraces, are the rugged, 6500-foot Sierra Anchas, marked with snow-like tailings of abandoned asbestos mines and dotted with prehistoric dwellings that have yielded many fine Indian artifacts.

This lake is another favorite with fishermen who like to angle for its big bass. And though there are somewhat fewer boats for rent, other facilities — cabins, cafes, groceries, fishing supplies — are a bit better than at other Trail lakes.

During our drive over the Trail we saw many yellow signs warning: "Watch Out for Cattle." It seemed like an anomaly in this rugged, almost grassless region, and I wondered where the cattle might be. Suddenly, as we entered the town of Roosevelt just beyond the dam, our four year old Linda started pounding my shoulders and shouting, "Daddy, daddy—cows!" Sure enough, there they were, wandering all over the road in front of us. The signs were right!

About two miles past Roosevelt we

came to a rustic National Park Service sign indicating a right turn for Tonto National Monument (*Desert*, Oct. '52) and decided to take the short drive to this well-preserved Salado cliff dwelling.

The dwellings and magnificent vistas from the monument area offer a challenge to photo enthusiasts. Perhaps the best filming time for Trail pictures is early morning (until about 10 o'clock) and late afternoon. It is then that the dramatic, sun-cast shadows give excellent contrast and perspective. During the full-sun hours landscapes often turn out flat on film. Other tips: use yellow-orange, red or haze filters; a light meter is essential.

Returning to the Apache Trail from the national monument and again admiring the inspiring, bowl-like panorama of Tonto Basin, we began the last lap of the trip over undulating desert rimmed with lofty mountains, across Pinto Creek, up a long hill and past Smoke Signal Peak, once used for signaling by Indians, U. S. troops and even gamblers trying to win election bets.

Just before reaching the junction with the road to Pleasant Valley, the Trail became paved again. At this point we stopped the car for a last backward look at Tonto Basin. From here we coasted down into the old farming and mining country around Wheatfields, once the scene of expeditions to find the Lost Doc Thorne Gold Mine reputedly located near Sombrero Butte; through Burch where in 1876 numerous small gold and silver mines flourished and where some claims are still visible; and finally back to U. S. 60, 70, near Miami.

Here we turned westward for the 83-mile drive back to Phoenix—past the mountainous slag heaps of the Inspiration Consolidated Copper Company's smelter and the site of the Bloody Tanks Indian Massacre in Miami, through the pinnacle-rocked areas of Devils and Queen Creek Canyons, into the copper town of Superior and on past the Southwestern Arboretum with its hiking trails and more than 10,000 varieties of arid country plants from all over the world.

The sun had long since set, casting its fiery light like a halo behind the mountains, when we reached home again. But a million stars, silvering the darkened sky, gleamed upon the desert—reflecting not only the radiance given our spirits by this trip over the Apache Trail, but also the lore of more than seven centuries of man's works and eventual triumph over the vagaries of Nature.

Roses in a Desert Garden

Many species of wild roses thrive on the American desert—and domestic roses will thrive here also, if given proper care. This month Mrs. Reynolds tells desert gardeners what species are most adaptable to this region, and when and how they should be planted for best results.

By RUTH REYNOLDS
Photograph courtesy of
Jackson & Perkins

"**A**ND THE DESERT shall rejoice and blossom as the rose," prophesied Isaiah in the Old Testament, and the prophecy has come to pass—is coming to pass every day in our desert gardens, before our eyes and partly by our hands. And each time the desert is made to bloom the little miracle rejoices us.

That the Biblical prophet should use the rose symbolically seems only natural, for the rose is almost universally renowned as the queen of flowers.

If Congress should ever pass the resolution introduced last year by Senator Margaret Chase Smith of Maine and Representative Frances Bolton of Ohio to make the rose our national flower, the Great American Desert would be greatly represented flower-wise for many species of roses are native to the Southwest including the beautiful pink Mojave rose of California's high desert, and the *Rosa Arizona*, most abundant and widely distributed of the five species of wild roses native to Arizona.

So in any rose controversy that may arise, I am a biased bystander, one who, come planting time in January, may have a try at domestic rose cultivation in the desert.

It has been done, I know, by many people for many years, despite the fact that many others still believe roses will not grow in Southwestern gardens.



The Kate Smith, a vigorous, heavy foliaged Hybrid Tea Rose with long buds and large flowers in rich apricot tones.

Doesn't Arizona, at Tombstone, have the largest rose bush in the world? The famous white Lady Banksia there is over nine feet tall, with branches—bloom laden in spring—spreading over a 60 square foot arbor. It was planted, I was told, by a young bride from Scotland, more than 70 years ago.

But it is the modern improved roses that have me under their spell. Here in Tucson I have only to look about me to see, in some of my neighbors' gardens, roses that must surely be among the world's most beautiful.

There is one garden in our neighborhood that is positively overwhelming. Ted discovered it last spring and took me to see it. "There's something I want to show you," he said one eve-

ning and we got in the car and were off. Our destination was only eight blocks from home and my husband's discovery was a gorgeous sight indeed—even by street light and starlight.

We did not know then who lived in the rose banked, bordered and trellised house behind the profusely blooming rose hedge, but one day when I went back, parked around the corner and walked by to have a better look, Myrtle Eisele emerged from behind a rose bush and caught me loitering there—and I made the acquaintance of one friendly neighbor and 60 varieties of roses.

During the months that followed we became better acquainted and Mrs. Eisele's garden has been my proving

ground for roses that do well in the desert when cared for lovingly.

After a recent visit to the Tucson Memorial Rose Garden where there are over 200 varieties, planted under the direction of Dr. Rubert B. Streets, Plant Pathologist at the University of Arizona, I concluded that almost any rose properly planted and watered does well in the desert even with ordinary care. And a letter just received from a gardener in Morongo Valley, California, indicates that rose growing extends to the Mojave Desert. George A. Stingle writes: "We did not plan on planting anything but we did plant a rose and then another and another until now we have 77 varieties."

Perhaps therein lies the rose growers peril! Once started there is no stopping place, for there are over 7000 known varieties from which to choose.

The average gardener, however, usually chooses from among the striking beauties made available through dedicated scientific labor within the past 25 years. Many of them carry the significant All-America symbol (AARS) which means they have been test grown in 20 strategically located gardens throughout the country. Many are patented but a patent is not a guarantee — it only reserves propagation rights.

Most modern roses are either Hybrid Teas or Floribundas. The Grandiflora, a class derived from crossing these two, is still so new that few varieties of it are available. The Queen Elizabeth, first of the Grandifloras, won the 1954 All-America award. It inherits floribunda hardiness and Hybrid Tea beauty in its heavy, glossy foliage and pure pink blooms.

There are also Large Flowered Climbers — Pillars, requiring little or no support; Everblooming Climbers; Trailers, for trailing over banks or trellises; and Climbing Hybrid Teas and Floribundas with less continuous bloom than the bush varieties.

Hybrid Teas—most popular of all roses—are bred, generally, by crossing Tea roses with Hybrid Perpetuals. They grow from three to six feet tall and produce long-stemmed exhibition blooms, borne singly or in groups of from three to five. The buds are long and high centered, the flowers perfectly formed, the petals durable. They bloom, in this climate, from April through December, with the greatest display in spring and the second greatest in fall.

An outstanding example in this class is the Peace rose—All America winner in 1946. The plant is hardy, with glossy, holly-like leaves. Its fabulous buds are yellow edged with pink, opening slowly into large flowers in pastel

yellow, pearly white and apple-blossom pink.

Hybrid Teas come in every shade of every color the rose is heir to, and in blends and multicolors. For those whose roses must be red there are New Yorker, Chrysler Imperial, Mirandy, which does best in hot weather, and others.

One of the prettiest pinks I've seen is the Mrs. Charles Bell, an unpatented rose. Kate Smith is a lovely Hybrid Tea in rich apricot tones. Its large ovoid buds open slowly and its flowers are large and long lasting.

Floribundas result from crossing Hybrid Teas with Polyanthas (Baby Ramblers). They are hardier and more disease resistant than Hybrid Teas. Their blooms are smaller but abundantly borne in clusters. Some of the newer varieties remain fresh for days either on the bush or as cut flowers. Where they really shine is in mass planting. The 1955 All-America, Circus, belongs to this class. It is a multi-color, varying from yellow and red in the bud to orange-buff and pink and finally to red in the flower.

Another new floribunda—one that caught my eye at the Memorial Garden—is Spartan, with orange-red, Hybrid Tea shaped buds that open to reddish-coral blooms. For a splash of vivid color in the garden it is my first choice—for the moment anyway.

It was developed by Jackson and Perkins, one of the country's oldest rose growing concerns, which now has large rose fields in the desert north of Phoenix. Some of their desert grown plants will probably be carried by our nurserymen this year and it will be interesting to see if they prove adaptable.

For winter planting only dormant bare-root plants are sold, and winter planted bare-roots grow best. They are graded by a standard grading system into grades 1, 1½ and 2. Grade 1, the best, must have three or more canes starting three inches or less above the bud union and at least two of them must be 18 inches long. Grade 1½ must have two or more canes 15 inches long and grade 2 must have two 12-inch canes.

Naturally it is best to buy a grade one plant, especially in the desert where great pains must be taken and some expense incurred in planting it.

For this important step Dr. Streets, whose method has proved itself in the Memorial Garden, offers these directions: Dig a hole three feet wide by two and one-half feet deep; fill it six-inches deep with water to test drainage. If the water has not disappeared within an hour sink an 18-inch post-hole in the bottom and fill it with sand

or gravel. Fill the original hole to within six-inches of the top with alternate layers of well rotted manure and soil mixed with a handful of sulphur and one of ammonium sulphate. Soak this thoroughly with water and let settle a day or two. Then plant the rose, making a mound of soil in the center and spreading the roots carefully; cover with soil to just below the level of the bud union, tamp firmly and water. Continue to water regularly and deeply twice a week.

For protection against drying out while the root system is becoming established Dr. Streets prefers covering the bud union with a six-inch mound of soil, which should be removed later if normal irrigating does not wash it away.

This is not the end of the story. Roses do need care—pruning, spraying, feeding—but not as much as you might expect. And if you love roses, as so many people do, there is just no end to the pleasure you may derive from growing them—in a desert garden.

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ILLEGAL TO SUB-LEASE JACKRABBIT HOMESTEADS

Tracts of public lands leased from the government under the Small Tract Act cannot be sub-leased, but the leases may be transferred or assigned under certain conditions, E. R. Greenslet, Nevada State Supervisor of the Bureau of Land Management, declared.

The policy of the Department of the Interior in administering the Small Tract Act is to promote the beneficial use of public lands and at the same time safeguard the public interest in the lands. As a part of this policy provision has been made to guard against speculative transfer of tracts by sub-leasing or assignment.

The Department of the Interior will not approve sub-leasing, in whole or in part, a tract leased under the Small Tract Act. Sub-leasing constitutes a violation of the terms of the lease and the lease will be cancelled.

Land office managers are authorized to act upon and approve assignments of leases. No assignment will be recognized, however, unless substantial improvements have been constructed on the land. The only exception permitted is where the lessee makes a valid showing that failure to construct improvements was due to unforeseen or unavoidable misfortune.

The person to whom a lease is assigned must be at least 21 years of age or head of a family and a citizen or have declared intention to become a citizen, and he must be otherwise qualified to hold a lease. — *Nevada State Journal*.



Left—Steam rises from one of the many boiling springs in Whirlwind Valley. Heavy silica content of water formed the opal nodules in foreground. Right—Steam rises 75 feet above the largest geyser in the valley.

Geyzers of Whirlwind Valley...

From a sheepherder, Nell Murbarger learned about Whirlwind Valley—a remote pocket in the mountains of north central Nevada where a colorful terrace of geysers and boiling pools provide an amazing spectacle for the few people who venture over the treacherous road that leads to this spot.

By NELL MURBARGER
Photographs by the author
Map by Norton Allen

FIRST LEARNED about Beowawe geyser in Nevada's Whirlwind Valley from a Basque sheepherder. One night when the late Dora Tucker and I were camped in the Toiyabe Mountains he came riding into camp, cold, hungry and lonely.

We had finished our supper, but Dora, with true desert hospitality, piled more sagebrush on the fire and put the coffee pot and skillet on to re-heat.

We visited while he ate, the conversation drifting from sheep to ghost towns, and finally to the subject of hot mineral springs. It was then that he told us about Whirlwind Valley.

It was a strange story, told in a garbled mixture of French, Spanish and English—the story of an isolated

pocket in the hills where geysers spouted scalding steam from fissures in a milk-white terrace, hot mineral water boiled in opal-lined pools, and fumeroles gurgled and rumbled.

It was a tale perfectly suited to the flickering light of a dying campfire under a stormy sky in the dark Toiyabes.

As for authenticity, I had my doubts. Dora and I had tramped and camped in virtually every mountain range and canyon in Nevada. That a place such as the old herder described could have escaped our knowledge seemed implausible.

A year later I mentioned the story to B. F. Crouch of the Mackay School of Mines in Reno.

"Yes," he said to my surprise, "there is such a field of thermal activity in Eureka County, but few know of it."

These geysers were discovered by a cavalry patrol in 1867. The first known published account of the field was written by Albert S. Evans for the *Overland Monthly* of San Francisco in 1869. Sixty-five years later, in 1932, the *American Journal of Science* published a second report on the field—the result of "a few hours study" by T. B. Nolan and G. B. Anderson of the U. S. Geological Survey.

"So far as we have been able to learn," said Mr. Crouch, "nothing further has been published on the district."

While buying supplies at Beowawe for our first trip to the geysers an old rancher warned us to leave the valley at the first sign of rain.

"Get out—and drive like the wind," he advised. You cross an alkali flat to get there, and once that flat gets wet you've got five miles of grease under your wheels. It would stall an army tank!"

Heeding that advice, Dora and I had twice driven into Whirlwind Val-

ley to get acquainted with the geysers—and twice we had hurried away before our exploration was completed when storm clouds overhead threatened rain.

And now I had returned for the third time to complete my exploration of this valley of steaming geysers and sputtering fumeroles.

Leaving Highway 40 at a point 30 miles east of Battle Mountain, I turned south on the paved side-road that leads six miles to Beowawe on the Humboldt River—a typical western cow town, fringed with corrals and bisected by the tracks of the Southern Pacific Railroad.

I learned at the postoffice that two weeks previously a rancher reported the geyser road “terrible, but passable.” With that reassurance, I headed out of town toward the southwest.

For the first mile-and-a-half the road follows the crest of a low dike—evidently built to provide all-weather access to an emergency landing field

south of town. At the end of this dike the trail is crossed by a drift fence. Beyond lies stark desolation.

The desert cattle range, rolling hills, and scrub junipers common to the region of Beowawe, here are replaced by a wide white alkali playa, as flat as a lakebed. Flanking ridges of burned reddish rock, rose steeply on the east and west. Jackrabbits bounded out of the greasewood to cross in front of my car and the shrill yammering of kill-deers rose from the flat. These were the only evidences of life.

A dozen trails meandered haphazardly over that sun-bleached void, their casually-engineered routes swinging wide to by-pass gullies, easing down and through dry water courses, and adroitly dodging rocks and brush.

Bumping along at a discreet five miles an hour, following whichever wheel track appeared best at the moment, I laid my course by the opaline terrace, now taking definite form against the range to the east.

Five and six-tenths miles from Beowawe, the several trails converged to pass through a third drift-fence gate; and one and one-tenth miles from this point I parked the car on the white sinter slope at the base of the terrace. Hot steam was spiraling from a dozen vents in the ledge above and boiling springs on the lower flat were rising, overflowing and subsiding with mechanical regularity. As nearly as I could determine, nothing had changed in two years.

Largest of several springs on the flat is a cone-shaped pool, 15 feet across and half as deep, filled to the brim with churning, crystal-clear water of 170 degrees Fahrenheit.

We had camped near this pool on previous trips, and remembering the convenience of having gallons of hot water always at hand for dishwashing, laundry, and even for boiling eggs, I unloaded my gear on the edge of a steaming cauldron where an occasional puff of wind sent a spray of sulphurous steam swirling around me.

When I travel alone my desert camps are very simple affairs. A small square of sheet tin laid on four level rocks for a campstove, a pot of hot tea, a can of prepared soup or a skilletful of bacon and eggs—and afterward, my sleeping bag spread on the ground under the stars.

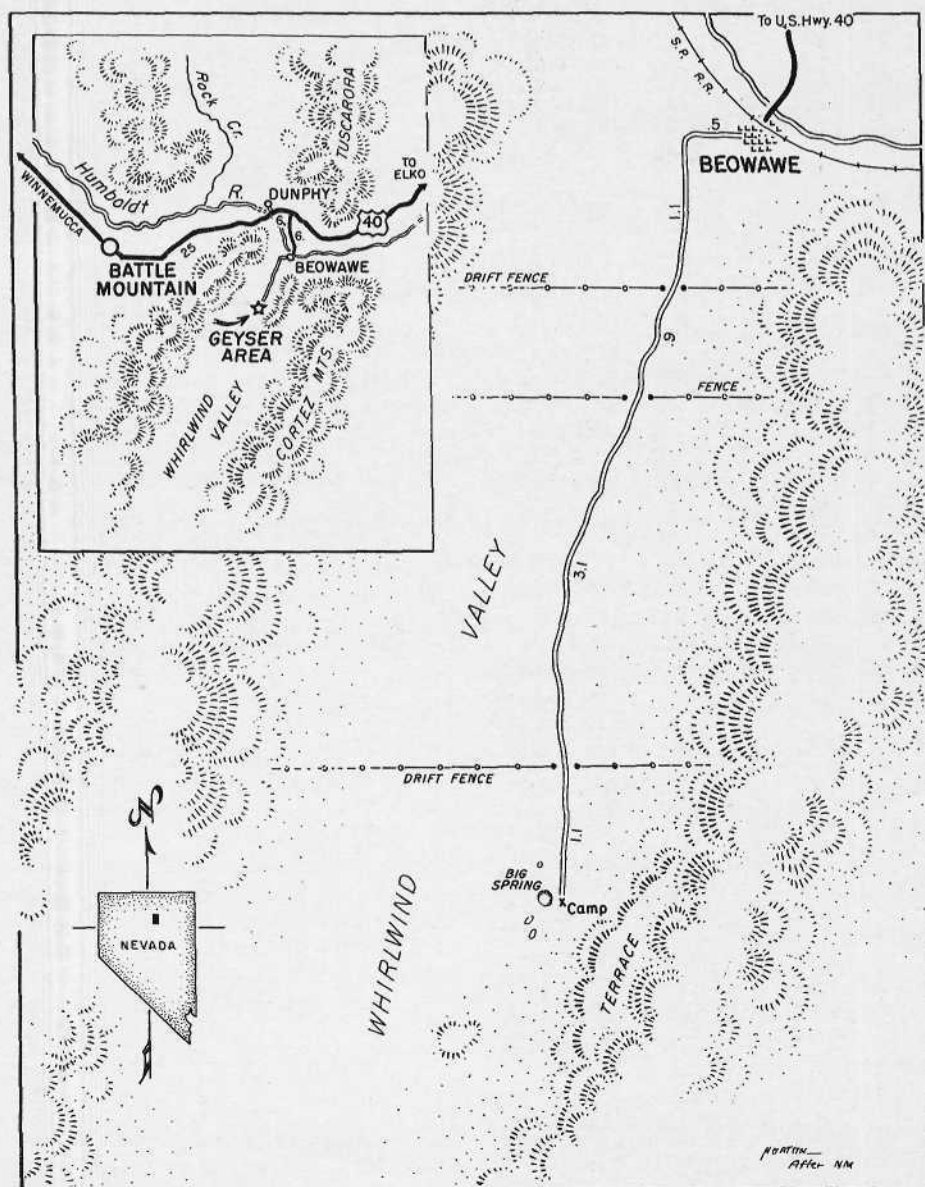
It was a strangely beautiful night. Tempered by the moist warmth of the geysers, even the mile-high elevation of the flat seemed touched with a tropical softness. Low over the rocky hills a tiny sickle of moon cast a misty glow on the white sinter, transforming the spiraled plumes into silvery wraiths that silently rose and vanished into the dark sky.

In vain I listened for the single yelp of a coyote, the hooting of an owl, a cricket's chirp or the rustle of a leaf. But there was no sound save an occasional bubbling from the big spring. Even this seemed strangely subdued.

To my relief, the morning sky was as blue as a mountain lake, without so much as a single cloud to frown on my presence. During my stay in the valley, I wished in particular to conduct a thorough exploration of the terrace above camp including a complete census of all eruptive geysers, fumeroles and springs, and to make a photographic record of their action.

I also hoped to sketch plants and birds in the vicinity and perhaps spend some time searching for Indian relics on a butte that rose a half mile south of camp.

With breakfast cooked on the tin-topped campstove, dishes washed in the big spring, canteen filled, and my photographic equipment stowed in va-





Sinter terrace, white bench in background, viewed from the largest hot spring on the flat. The sinter is formed by the deposit from hot siliceous springs and geysers.

rious pockets and bags, sunrise found me hurrying across the flat to the terrace above.

According to Nolan and Anderson's report, this geyser-built bench has a vertical rise of 200 feet above the valley floor. Due to the steepness of the ascent, however, its height seemed much greater. The loose sinter afforded poor footing and where the periodic overflow of a geyser spilled down the slope, the saturated earth was very slippery.

When at last I pulled myself over the lip of the terrace, I was little prepared for the sight before me. Instead of a ledge 10 or 12 feet wide as I had estimated at camp, the bench proved to be nearer 100 feet in width. Its length was approximately three-fourths of a mile—and every square foot of that area seemed alive with thermal activity!

To one bent upon a scientific tally it was a bewildering prospect, but I resolutely began a cross-check of the terrace using five classifications: eruptive geysers, flowing hot springs, passive springs, and live and dead fumeroles.

It would have been an impressive survey had the terrace shown even a

slight willingness to cooperate. It was bad enough when springs cataloged as passive suddenly changed to flowing springs, and flowing springs ceased to flow, but the last straw came when I heard a great whooshing and whistling behind me and looked around to see a 30-foot column of boiling water and steam shooting from a vent I had but

Geyser's mouth on sinter terrace.

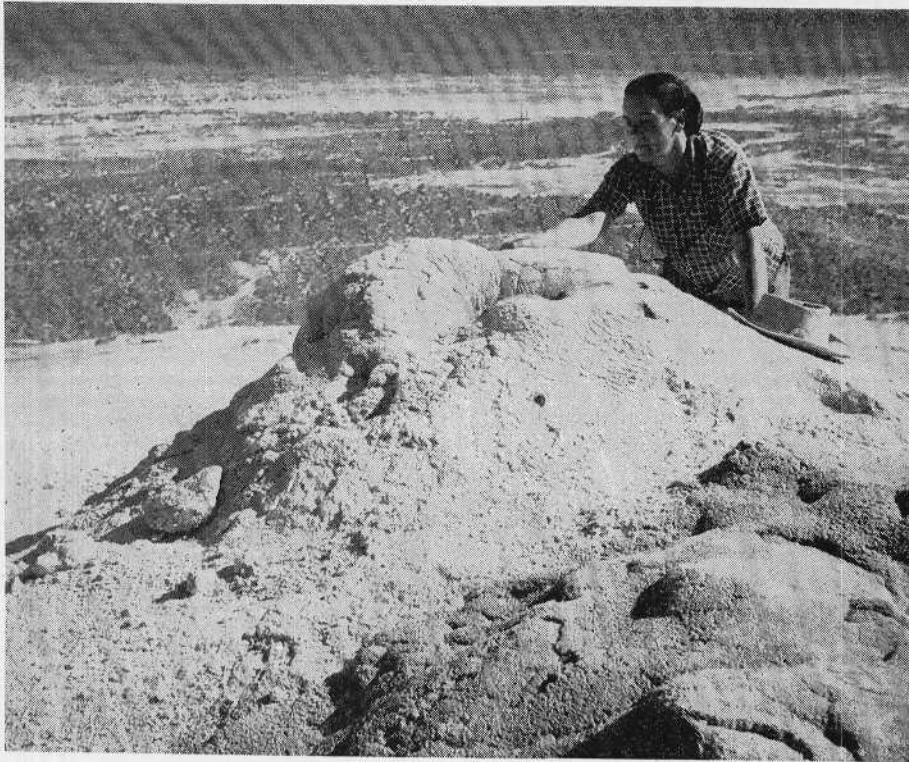


recently tabulated as a dead fumerole. With that, I put the notebook back in my pocket and decided to leave the cataloging of this geyser field to some one else.

All types of thermal activity were represented on the ledge, as well as boiling springs of every size. One little geyser with a throat no larger than an ink bottle maintained a constant fretting and sputtering. Although it threw water only eight inches into the air, it made quite a fuss about it. Not a dozen feet away was a dark blow-hole of unknown depth. Neither steam nor water issued from it, but far below could be heard an ominous roaring and rumbling like the noise made by an angry bull.

The terrace was made from siliceous sinter, a chemical sediment deposited by mineral springs whose waters have a high content of silica. Even basalt rocks, tumbled down from the hillside above, are covered with layers of this material.

Forming bulbous collars around the geyser mouths, and lining many of the hot pools, is a pearly-white encrustation of cemented opal fragments resembling coral. Occasionally I found pools in which this opal lining showed



Author examines opaline collar on the throat of one of the larger spouting geysers on the sinter terrace.

faint traces of rose or iridescence, but none which exhibited any play of color or "fire."

A few pools are highly tinted by algae. One small geyser had a cream-colored throat bordered by alternate rings of chartreuse, sulphur yellow and senna, with wedge-shaped blotches of white, deep green and rose on its outer fringes.

I found a few mudpots on the terrace. One six-foot radius contained separate pots of yellow, pink, and blue mud. Analysis by the U. S. Geological Survey showed that 10 percent of these muds consist of diatoms which were classified into 10 species, three of them termed rare.

Certain sections of the terrace crust seemed extremely thin. My passage occasionally set up an echoed rumbling far below, and once, when I sat down to change film, I found the surface of the ground too hot to remain seated.

While the top of the terrace is generally bare of vegetation, there are certain portions of it where I found salt grass. In several places it grew on the very lip of a hot spring with its white roots protruding in water only 35 degrees below the boiling point! Such clumps invariably were swarming with giant mosquitoes.

There also were a few flowering plants on the terrace including several specimens of desert primrose with white blooms as large as saucers. What I consider the strangest botanical discovery of the trip was made while slip-

ping and sliding down the steep face of the terrace on my way back to camp.

As a result of high mineral content, the water of one constantly-flowing spring had cut a red-stained water-course down the terrace face. Fringing this course for 100 feet or more was a narrow band of wild cyclamen (*Dodecatheon*). Exceptionally luxuriant and of a deep red-purple, these were the only representatives of their species that I saw in the area.

Later as I sat in the shade of the car eating, I remembered the meal Dora cooked in the big spring on our first visit.

Into a burlap sack she placed a tin of roast beef with gravy, a can of whole new potatoes and a carton of eggs. Wiring the top of the sack to a crooked branch, she lowered the bag into the spring's hot innards.

With hot water periodically creeping up the sides of the pool and hot steam swirling densely around her she stuck it out for 20 minutes and then hauled up the bag. We found that everything was cooked to a turn—including the hard-boiled eggs.

I managed to crowd everything I had planned to do including a hot mineral bath into my two-day stay. Due to the earliness of the season, several species of plants collected near camp were not in flower and therefore not readily identifiable.

Among those I was able to classify beside the sand primrose and wild

cyclamen were desert mallow, Booth's primrose, candytuft, larkspur, blunt-leaf stinkweed, Esteve pincushion, white tidytops, greasewood, rabbitbrush and scale. There seemed to be little birdlife, due, possibly, to a scarcity of insects. The only species noted were killdeer, meadowlarks, Brewer's blackbirds, a few mourning doves and a lone flycatcher.

While my sporadic searching for Indian relics yielded only half a broken arrowhead and countless pieces of flint and obsidian chippings, I later learned that large numbers of superb arrow-points and spearpoints had been collected in this vicinity—particularly to the southwest where a battle between tribes is supposed to have occurred many years ago.

Possibly even that prehistoric conflict saw the big spring on the flat ebbing and flowing. Perhaps, even then, the wild cyclamens were blossoming on the terrace slope, and the steam from the geysers spiraled upward like silvery phantoms in the moonlight.

At least I like to think so, for in that belief lies my assurance that Whirlwind Valley will still be unchanged when next I have an opportunity to visit it.

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INDIAN CRAFT DECLINE LAID TO MEAGER RETURNS

Many of the Indian arts and crafts are rapidly becoming lost arts. A good example of why this is so is found in Navajo rug weaving. A modern Navajo woman has been able to earn about five cents an hour with her rug weaving when one considers the many hours it takes to complete the rug. She takes it to the trading post to trade for credit and if she uses some of that credit, for instance, to buy a can of pears, she will pay 35 cents or more for the fruit—equivalent to seven hours or more of her work at the loom. So she doesn't buy the pears. She gets plain tomatoes instead. At the same time her husband or son may be employed for off-reservation work at \$1.50 to \$2.50 an hour. So she stops weaving. Wouldn't you? —*Doors Toward the Sunrise* by Earle F. Dexter.

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GOVERNMENT BOOSTS PUBLIC LAND TRANSACTION CHARGES

A new schedule of service charges for processing public land transactions, mineral leases and permits were announced by Secretary of the Interior Douglas McKay.

Fees ranging from \$5 to \$15 will be charged for 59 separate categories heretofore handled without charge, and for six other types of services for which only nominal charges have been made.

Wasteland Songbird



Far out in the rocky terrain of the most arid desert one may hear the cheery tinkling song of one of the hardest of American birds—the Rock Wren. As if to compensate for the bleakness of her habitat, the mother Rock Wren raises a big family, and paves her front yard with tiny cobblestones—for reasons that remain a mystery to human beings.

By EDMUND C. JAEGER, D.Sc.
Curator of Plants
Riverside Municipal Museum
Sketch by Lloyd Smith
Photographs by Stanley Phair

DR. JOHN ROOS, able young pathologist and competent botanist, recently took me along on one of his station wagon exploration trips into Saline and Eureka Valleys and the Last Chance Mountains to the north and west of the Death Valley Trough. It was summertime and I found it to be an exceedingly arid region but abounding in beautiful scenery varying from pinyon-covered flats, precipitous walled canyons and strangely formed mountains to salt flats and soft-surfaced sand dunes. Dr. Roos has found this area particularly attractive because of the number of plants new to science which he has been able to find there.

On one of our side trips to lower

Eureka Valley our jeep took us to a meeting place of dune sands and barren, beautifully banded limestone mountains. Here, I thought at the time, is an example of the desert's most sterile land. The sand and wind, warmed by the noonday sun were dry and very hot; still warmer were the near-by rocks. What then was my great surprise when in this land of seeming desolation I heard a faint but clear-toned bird note. Looking up I saw a neatly feathered gray-brown bird almost as large as a sparrow and with a slightly curved beak. It was a Rock Wren, disporting itself in perfect comfort on a spit of burning stone.

"Is this really a living bird I see," I exclaimed to Dr. Roos, "or is it only an apparition?" Apparently no desert place is too bleak, no area of rock too dry to serve as a dwelling place for this sun loving wilderness bird.

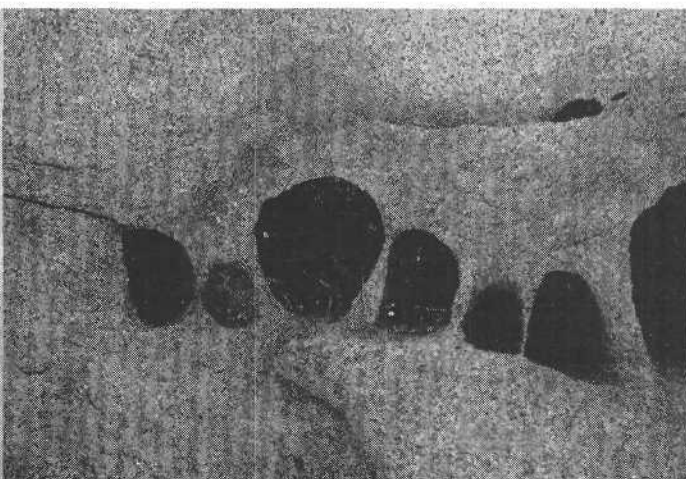
In lonely forbidding mountains of red volcanic rock and brown lava

where it would seem no life could possibly exist in summer, I find the Rock Wren in occupancy and often enlivening the solitude with its cheery, tinkling, metallic song. Especially impressive is this song when heard in the early morning or late evening hours of spring when it is most varied and frequent.

Recently Stanley Phair and I spent several days on a special hunt for Rock Wren nests. We chose an area of large granite bosses and boulders in the midst of the bleak Mojave Desert for our search. By keeping alert eyes for the signs of nest sites, we were able to locate eight nests, old and new, in a few hours.

The tell-tale evidence of the site of a Rock Wren's nest is always the unique pathway of small, generally white, flat stones below the crevice or crypt in which the nest is located. The number of such stones, most of which are elongate and from an inch to an

Rock Wren nest crypts. In the picture at the left may be seen the pavement of tiny cobblestones—brought there by the wrens for unknown reasons.



inch and a half long, varies from 25 to as many as 100 or more. Very often there are additional flat stones placed at the entrance to the nest crypt itself to shore up the opening so that it will be only large enough for the birds.

Just why the stones are placed below the nest no one really knows. Are they there to serve as an adornment or do they have some utilitarian purpose? Perhaps they act mostly as a means of nest site identification. The number of flattish stones attests to the extraordinary penchant for industry this dusky-brown feathered worker has. The birds must search diligently and long to find, select and transport so many of them. Some of the stones must weigh almost as much as the wren itself.

Most of the rock crypts selected for nest sites are found on rock walls facing the east, perhaps to ensure early exposure to the sun's bright and warming rays. Most of the nests are about three feet above ground level. Some are much higher while others are on the ground under the shelter of a rock—a perilously unsafe site with no protection against egg-hunting rodents or snakes.

The nesting material consists of small sticks and grasses. Feathers and other soft materials are used to line the nest. Occasionally a few thorns are added to discourage inquisitive intruders. The eggs, white with a few specklings of brown, may number as many as seven or eight. Once the eggs are hatched the parent birds spend most of the daylight hours hunting and bringing in surprising numbers of spiders and caterpillars to satisfy the lusty baby-bird appetites of a big family.

One of the most peculiar habits of the Rock Wren is its way of curtsying or bobbing about on the rocks just before it gives its singing call note. Sometimes while thus fidgeting about it whirls completely around. A moment later it may be seen going in and out of crevices as it explores the deep recesses of the rocks in its search for spiders and insects, or it may be glimpsed flying to some rock perch, there to continue its peculiar bobbing and singing.

The Rock Wren's song repertoire is a full one with many pleasing variations, especially during the nesting season. The bird also employs the usual wren "screeing" note of surprise and a clear ringing note of alarm, "turee," often repeated several times when warning the young of danger.

Water poses no problem for this hardy desert bird. It may occasionally drink from rain pools but does not depend on free water to any extent. It gets the water it needs mostly from the bodies of the insects and spiders on which it feeds.

Death Valley Woman Elected President of '49ers for 1956

Directors of the Death Valley '49ers, will continue their efforts to secure a museum for the Death Valley National Monument, despite Governor Knight's veto of the previous bill which had passed both houses of the state legislature in 1955.

Senator Charles Brown of Shoshone stated that he would introduce another bill at the next session of the legislature, and the '49ers at their annual directors' meeting following their Encampment program in November voted to press for the success of their project because they believe there is a very great need for such a museum, both to preserve the historical and prehistorical relics of the area, and to enlighten visitors to the monument as to the geographical, geological, botanical and wildlife features of the region.

Margaret (Peg) Putnam, operator of Stove Pipe Wells hotel was elected president of the '49ers for the coming year as successor to Dr. Thomas Clements of the University of Southern California. Other new officers are L. Burr Beldon, vice president; John Anson Ford, 2nd vice president; Eugene

Hoffman, executive secretary; and Mrs. Yvette Mayou, recording secretary. Arthur Walker of San Bernardino was re-elected treasurer.

Park Service officials estimated that nearly 12,000 people were in attendance at the 3-day Encampment, the largest attendance since the Centennial celebration there in 1949.

Ed. Hale of Trona won the annual Flapjack-Burro contest in record time of 70 seconds. Badwater Bill Frick of Virginia City took second place and Charlie Mitchell of Barstow, third.

Sylvia Winslow of China Lake won top honors for the second consecutive year in the art exhibit. Her painting, "Goodbye Death Valley," received the highest popular vote in the exhibit of desert art at Furnace Creek Inn. John Hilton took second place and Orpha Klinker, third.

The program included Artists', Authors', and Photographers' Breakfasts at the Death Valley Golf course, campfire programs, square dancing, sunrise services and exhibits of gems and minerals and antiquated firearms.

Contest for Photographers . . .

If photography is your hobby, you know well the desert's charm. No other area on earth offers you more distinctive camera subjects than does this land of sunshine and space. Desert Magazine is anxious to bring this charm to its readers each month in our Pictures-of-the-Month page. The best of the photographs submitted receive cash prizes and the monthly contests are open to both amateurs and professionals.

Entries for the January contest must be sent to the Desert Magazine office, Palm Desert, California, postmarked not later than January 18. Winning prints will appear in the March issue. Pictures which arrive too late for one contest are held over for the next month. First prize is \$10; second prize, \$5. For non-winning pictures accepted for publication \$3 each will be paid.

HERE ARE THE RULES

- 1—Prints for monthly contests must be black and white, 5x7 or larger, printed on glossy paper.
- 2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.
- 3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.
- 4—All entries must be in the Desert Magazine office by the 20th of the contest month.
- 5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.
- 6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.
- 7—Judges will be selected from Desert's editorial staff, and awards will be made immediately after the close of the contest each month.

Address All Entries to Photo Editor

The Desert Magazine

PALM DESERT, CALIFORNIA

LIFE ON THE DESERT

Our car would not start . . . we were almost out of water . . . the children were frightened and no one knew we were here . . . we had one choice—

Walk or Die

Here is the story of a young family which almost paid the supreme penalty exacted by the desert for neglect and unpreparedness. Dirty radiator water, determination, the stamina of two young children and luck finally brought them through.

By JUNE HAINES BETSWORTH

IN THE LATE summer of 1954, my husband and I and our two children left our Los Angeles home at 2 a.m. one early morning and headed for Chuckawalla Springs near Desert Center, California.

We were beginners in the rockhound hobby and very eager to get to the seam agate beds at the Springs. To guide us we had the Santa Monica Gemological Society's 1954 Survey map and Darold J. Henry's book, *Gem Trail Journal* which has maps and directions to the Springs.

Our supplies consisted of four water bags hung on our 1940 Lincoln's bumpers, five half-gallon jugs of water in the trunk, two one-quart canteens on our pack belts, two quarts of sugarless soda pop, a quart thermos of water, a quart of milk and enough food for one day. We planned to replenish our water at the Springs if needed, walk a mile into the wash to the agate beds, collect during the day and then start our return trip at nightfall.

Even though we had just finished reading Alonzo Pond's "Summer Heat" in the August, 1954, *Desert*, we made many grave errors on this trip that almost cost us our lives and those of our children.

Our first mistake was to attempt the trip in a conventional automobile. We will never go into the desert again unless it is in a jeep or similar four-wheel drive vehicle.

Our second mistake was to leave home without informing the neighbors of our destination and expected time of return. We also neglected to leave a note in Desert Center briefly describing us, our destination and when we planned to be out of the collecting area. Even the rescue trucks leave such records before each mission.

We followed U.S. 60-70 23 miles

past Desert Center to the dirt road leading south to the Springs. A service station attendant told us that rain fell in the area a few days earlier, but that the Chuckawalla Springs road was dry and somewhat sandy. We soon found that the road should more properly have been called a wash.

From the paved highway, the two wheel ruts run almost due south for six miles and then travel west eight miles parallel to the main highway. The road jogs a little to the north at the end of this stretch and then heads due south 1.7 miles to the Springs.

A sign reading "This Is It," probably erected by a thoughtful rockhound, marks the west-leading arm of this road six miles below the main highway. This east-west stretch was much worse than the road from the highway. We maneuvered up and down gullies, across jagged gravel, around boulders and passed cholla cactus and other desert flora higher than our car.

The underside of our car banged against the rocks on the road and soon we knocked a hole in our muffler and in three of the water bags.

We reached the foot of the Chuckawalla Mountains, and having traveled this far over indescribably terrible terrain, we were over confident and decided to push on.

The sand became deeper and more frequent. We crossed the short patches by speeding up the car and keeping our momentum.

The inevitable happened, however, while going around a bend in the low foothills. We slithered off the road and our wheels spun down into the sand. We were 25 feet from firm ground.

Our immediate thought was to release air from the tires, thus gaining

traction, but we had neglected to bring a tire pump. We did not think we could have made it back over the stony road without full pressure in the tires.

So we started to dig. We pushed and pulled, jacked up the car and placed stone slabs under the wheels, rocked the car—but the wheels spun deeper and deeper. After four hours we had succeeded in moving three feet. We were confident, however, that we would be able to get out.

We knew the Springs were no more than a mile away, so we drank our water unsparingly. The children were having a good time. They played under a Palo Verde tree and ate their sandwiches and potato chips. George and I had little appetite for a picnic. He worked steadily in the sun and I with him until, finally, I became wracked with a headache and had to rest in the shade periodically.

At 5:30 that afternoon we began to realize the seriousness of our situation. We tore apart a wooden platform we used in the back seat of the car for the children to sleep on. This gave us two planks each measuring one by four feet. We placed these under the rear wheels and they helped somewhat.

We took time out to explore the area around us. George hiked around the sandy bend to the west fork of the wash looking for the Springs. He saw two abandoned shacks, but nothing else. I hiked about two miles down the east fork. I found a small muddy basin at the foot of one of the mountains, but did not have the sense to dig down past the mud to the drinkable water.

Walking back to the car I decided that our only chance was to start walking for the highway. We could not wait for help for no one knew we were here. When I got back to the car I found that George had managed to move it half way out of the deep sand—we were only 10 feet from hard ground.

We jacked up the back wheels and placed our planks under them a dozen times until we were out. Nadine and Georgeen helped us load our equipment back into the car and we started back up that wash as fast as the car could take us.

The road was terrible. It was still

daylight and after 15 minutes of driving we stalled the car again trying to maneuver past a tall bush that required two consecutive turns in opposite directions. As our wheels started to spin in deep sand, George stepped on the gas, our car vaulted over the bog, but we hit the bush. The motor died as water boiled out of the radiator.

We let it cool for a half hour, poured some water into it and tried again. It would not start.

The sun finally set and we took stock of our water supply: a quart and a cup of water and a half quart of soda water.

We now debated our next move. Should we back-track the 8 or 9 miles east to the junction with the dirt road which led north another six miles to the main highway? Or should we strike out due north across the open desert to the highway? Surely this latter course would be much shorter. Or should George go alone, taking half the precious water, to find help? But, what if he did not make it? We could not wait long without water. Could we carry the children?

We made up our minds. We would follow the road, traveling all night in order to avoid being caught on the desert by the searing sun. George drained the radiator into a canteen and we started off.

Suddenly, far off in the distance, we saw tiny pin points of light to the north. It was the highway! After quick deliberation, we decided to head out across the desert for the lights. This short-cut would save us many miles, we thought.

Even before the walk began, George was exhausted. Working in the hot sun for 10 hours after driving all night had left him fatigued.

Luckily, a bright moon lighted the desert. We fixed our course on the mountain landmarks.

We walked for two and a half hours and at 10 p.m. we came to a clearing where we rested for half an hour. George and the children stretched out while I sat up with the flashlight guarding against spiders and snakes. George awoke every five minutes positive that he had slept for an hour. He was afraid that I might fall asleep too.

I jumped over a snake that appeared to be about three-feet long. Luckily he was not disturbed. If one of us had been bitten or sprained an ankle in one of the many deep gopher holes we tripped over, I don't know what we would have done.

After more walking my right heel developed an unbearable blister. I was

forced to take off my boot and limp on one bare foot.

We had a hard time waking Nadine after her rest periods. We had to keep telling her how serious our plight was—that if we did not keep walking we would all die in the desert sun the next day. She struggled up as quickly as she could when we told her that.

We walked another hour without a rest period, then 45 minutes, 40, 35 and finally only 20 to 25 minutes at a stretch without resting.

I did not sleep at first. I was afraid that I would doze off and not waken before dawn. We were almost out of water and our tongues were so dry it was difficult to talk. The occasional swallow of radiator water we took tasted better than bubbling spring water before the night was over. I don't think George ever took more than half-a-sip of water. I could see him weaken. He and Nadine were falling farther and farther behind. We tried to talk even though we knew it would make us more thirsty.

After two in the morning, Nadine kept up a constant moaning: "Will we ever get there?" "How much further is it?" "Is it time to rest yet, Momie?" "Can I sleep a little more?"

Several times the wind blew clouds across the moon and we could not see our guide marks. We continued walking in the dark on what we thought was a northern course, but when the moonlight returned we inevitably found that we had strayed far to the east or west.

Only once did we become panic stricken, thinking that we had turned around in some way and that we were heading south back to the Chuckawallas. Luckily we guessed the right direction and plodded on. We now began picking more immediate goals—clumps of trees or bushes. When we reached them we would pick another goal in the distance. The silhouette of the horizon changed rapidly as we walked on.

Again we caught the sight of lights from the highway. We were elated, but as we walked on and the lights did not appear closer we became very discouraged.

Once we heard the sound of an engine. At first we thought it was a truck, but it was an airplane. George lighted two magnesium flares, but the plane continued on.

We began discarding all we could as fatigue set in. We threw away the pack sack, empty canteens, the boot I had tied to my belt, and finally our first aid kit.

At 3 a.m. our water supply was down to half a small canteen. George

was suffering now from dehydration and during our rest periods he would wake up shouting "Where am I? Where am I?" It frightened me greatly.

I was having a hard time staying awake. Every little nap was full of vivid dreams—and always of water. I dreamed of water running out of faucets, of trickles pouring from one canteen to another, of the big blisters on George's hand with water running from them—always of water! George and I called to each other during the rest periods to make sure we were at least half-awake.

Then George saw the glare of headlights to the northwest, much closer than the distant lights we were following now to the northeast. But, why were we unable to see lights directly in front of us?

We veered to the west. For a time the lights seemed to be getting no closer. We did not care about snakes or insects any more. We sank to the ground to rest anywhere we happened to be. Soon we could hear the trucks!

We climbed a bank and saw the highway. This bank, only four feet high, had blocked the view of the car lights in front of us.

We wanted to shout for joy but our tongues were too swollen. I felt like kissing that lovely, lovely strip of asphalt.

We sat down on the north side of the highway at 4:30 a.m. and turned on our flashlight to attract attention.

Our faces, arms, my legs below my pedal pushers—even my one bare ankle and foot, were covered with insect bites. We were dirty and tired. Our lips were swollen and cracked.

A half hour later, after many trucks and automobiles had passed us, two cattle trucks stopped and took us to Desert Center.

In another hour, from between the deliciously cool sheets of an air-conditioned motel, we saw the bright, sudden dawn come in our windows. We had made it with an hour and a half to spare!

Old timers in Desert Center told us many stories afterwards of people who had perished in the desert by wandering around in circles. They told us we were very lucky.

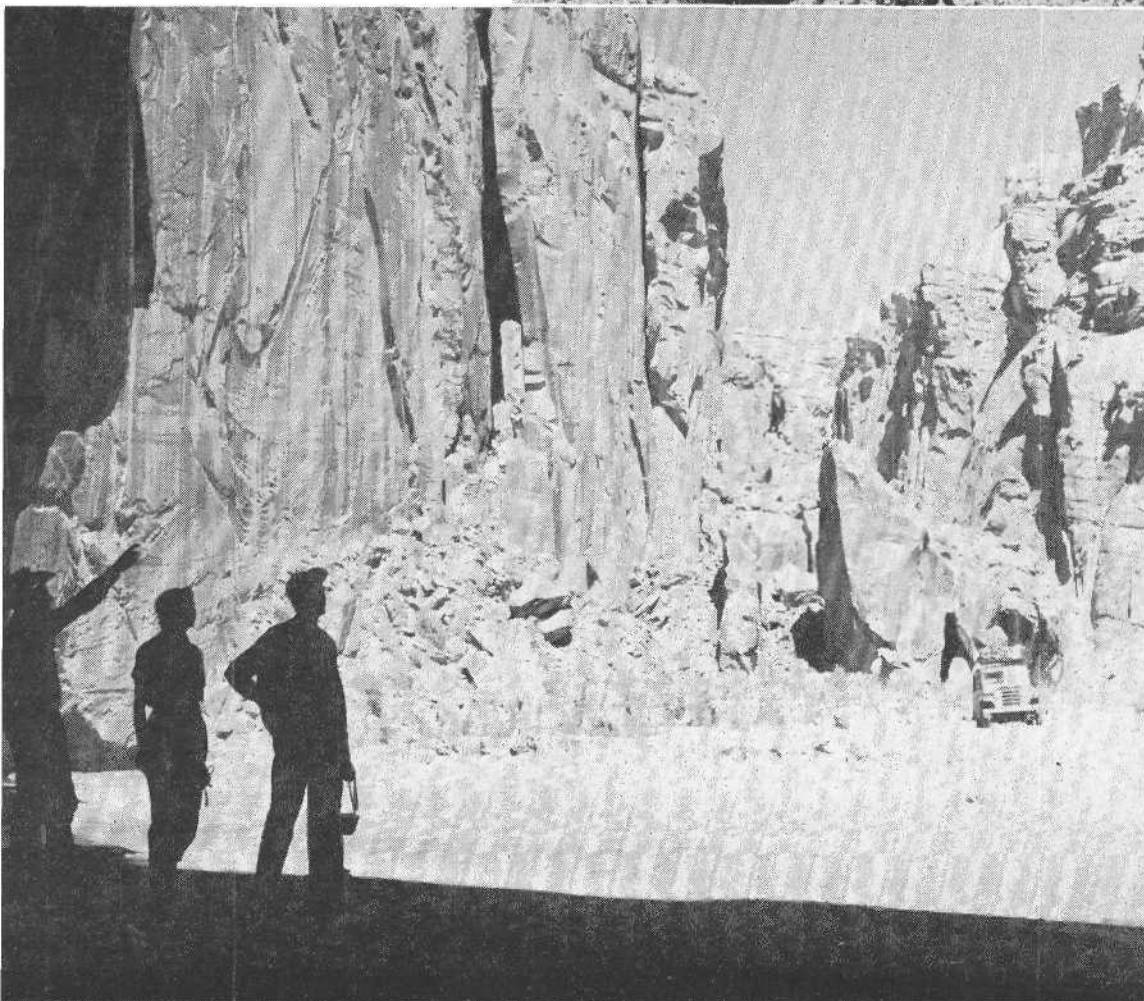
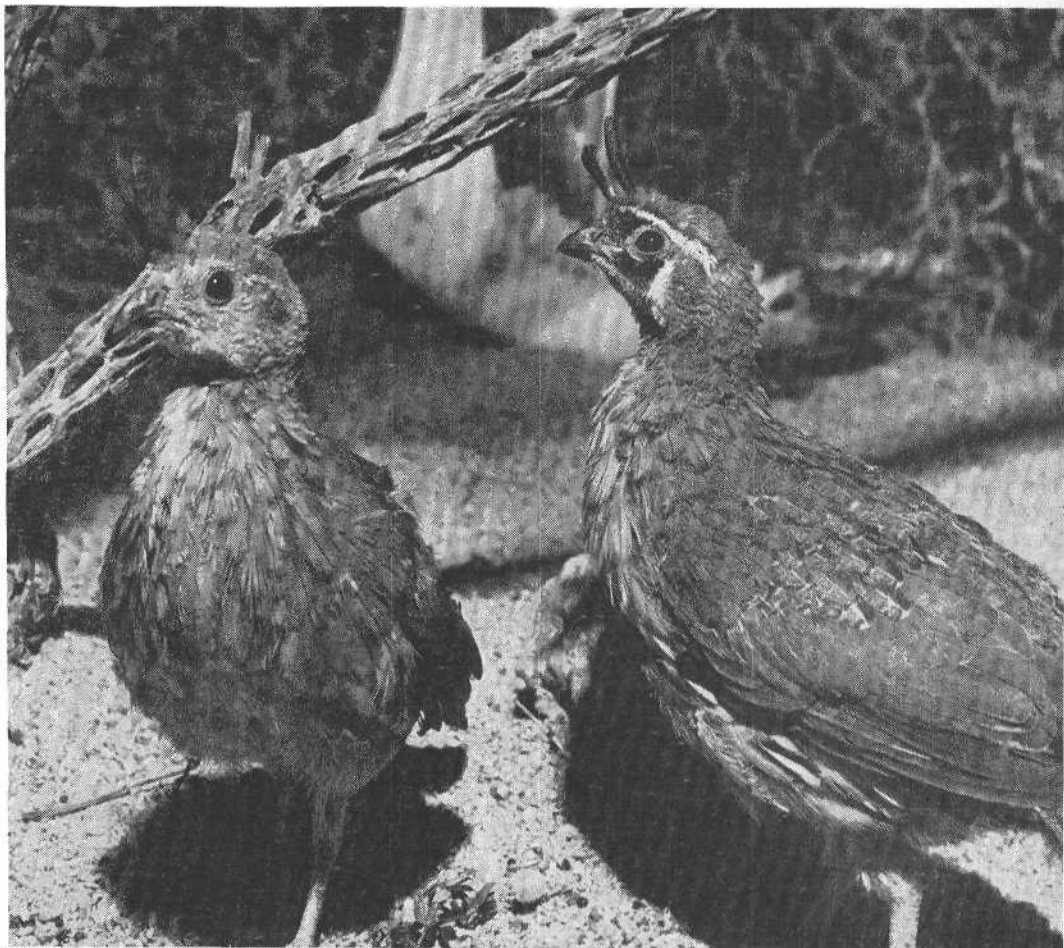
We will never make another desert trip in anything but a jeep and standard supply for all future trips will be a compass, three times the amount of water deemed necessary and a note at the last stop.

And we will never leave the road—no matter how bad or out of the way it seems. As far as we are concerned, there is no such thing as a short cut across the desert.

Pictures of the Month

Valley Quail

These young Valley Quail were photographed near Blythe, California, by this month's contest winner, L. D. Schooler. Mr. Schooler fed grain to the quail at this same spot several times before he undertook to photograph them. He used a Rolleicord camera, plus X film at f. 22, 1/50 sec., flash and remote control on shutter.



Big Muddy Canyon

Second prize winner is Mrs. Barbara Bixby with this photograph of towering cliffs in the Big Muddy River Canyon of southeastern Utah. Mrs. Bixby used a Giro-flex camera, plus X film, 1/50 sec. at f. 11 with a K-2 filter.

I Saw Black Gold from Pegleg's Hills

Here is an amazing new link in the tightening search for the desert varnished black gold of Pegleg Smith—a search that is now in its 104th year. Author Marston fully realizes the limitations of his evidence, but he knows the Colorado Desert of Southern California and he knows gold when he sees it—and he saw it!

By JOHN MARSTON

IN THE EARLY morning hours of April 21, 1945, we entered the city of Florence, Italy. Being on detailed duty with a high priority rating, we nevertheless found ourselves somewhat stymied due to the tremendous momentum General Clark's Fifth Army had gained in the drive against the enemy. The front was less than 50 miles north of us, and over one of its main highways the wounded poured into Florence in a constant stream.

That evening after supper, I left my billet, the Albergo Excelsior, for a stroll along the river Arno. A few short blocks from the Ponte Vecchio I came to the corner where Dante first beheld his beloved Beatrice. As I was idly planting my feet about in order

to establish that I had set foot where once the great Dante walked, two military police drove up in a jeep. They asked if I cared to donate a pint of blood for the wounded. After examining my dog tags and finding I possessed the proper type blood, we drove off for the blood-bank.

A sergeant was on the cot next to me, who was also giving his pint and to pass the time I engaged him in conversation. I noticed from his insignia and "patch" that he belonged to a tank outfit. I asked him where he had received training. He told me that before his company embarked for Africa it had been put through extensive desert maneuvers in the state of California, all the way from Needles south,

through the Chocolate Mountains and then across the border to Yuma, Arizona.

This interested me greatly for I know this country fairly well, particularly around the southern slope of the Choclates. I asked him if he had heard any of the legends concerning the Lost Pegleg Smith mine and the black gold. He admitted that he had. In fact he had formed the habit, whenever off duty, of driving his jeep through the desert to pick up rocks with the hope of finding a nugget. I assured him that many hundreds had done likewise throughout the years.

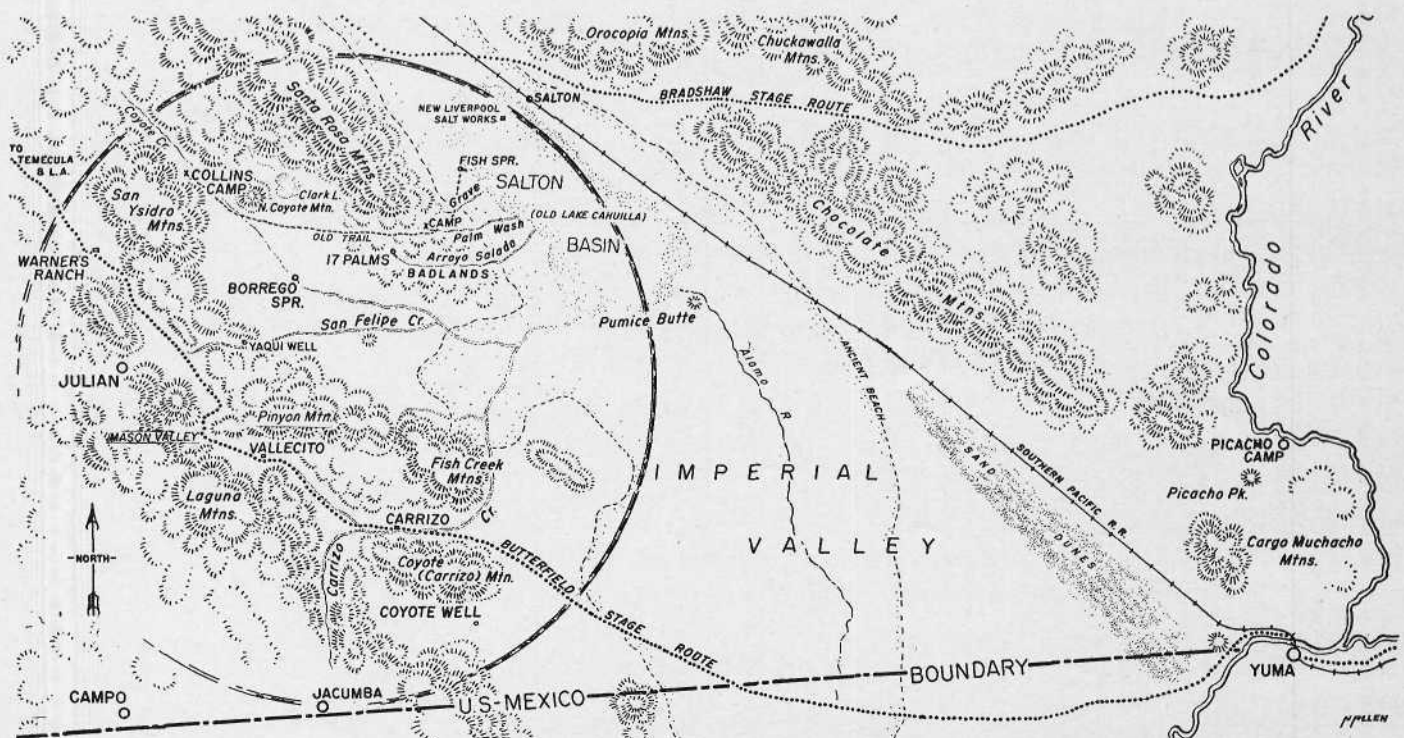
"I know, but here's something funny that I've been kidded about. I really did find some of those black pebbles. Here, I'll show you." With that he extracted a vial from his wallet and handed me a pebble the size of the head of an old fashioned lady's hat pin. Excitedly I examined the piece. "When we're through here I'll put it to the one test I know," I told him.

When they finished with us—and paid us off—I suggested we go across the street and donate the money to the Red Cross. There I procured a hammer and began pounding this pebble of his. It was malleable and it was gold.

"How much of this did you find?" I asked.

"Oh, I should say about 20 pounds. I mailed it to my dad in a number of

Southern California's Colorado Desert as it appeared at the turn of the century when many searched for Pegleg Smith's black gold. It is the conclusion of many of those who know the Pegleg story that the lost treasure is somewhere within the circled area.





Borrego Badlands—it was somewhere in this area that the sergeant in Patton's army reported that he found the cave with the pellets of black gold.

parcel-post packages for safe-keeping until I get back."

"My gosh, that would be over \$3000 worth! Tell me more," I exclaimed.

Here is the story he told:

One day while off duty he went on a jeep prospecting trip into the Borrego Springs-Seventeen Palms area—known locally as the Borrego Badlands. He found the gold in a low cave or crevice about 50 feet up the side of a low hill. In a way, this made sense to me, but a great deal more so four years later when I read H. E. W. Wilson's letter, "New Clues to the Pegleg Gold" (*Desert Magazine*, October, 1948).

"I'm not afraid that I cannot locate this cave again," he told me. "What troubles me is that I found the gold alongside the skeleton of a man. No, it was not Pegleg Smith! This guy had two legs with a good pair of heavy soled shoes on 'em.

"To the right of the skeleton lay a brown coat and a broad brimmed hat. On the body was a pair of blue dungarees and a heavy woolen shirt. The right sleeve was rolled up. A tourniquet, made with a red bandana and a pocket knife, was at the elbow. The poor guy had evidently been bitten by a rattler.

"To the left lay a saddle-bag. One

side contained some 10 pounds of these pebbles, the other about the same except that it was open and pebbles were scattered all over the place.

"Well, what really worries me is that I didn't report finding this skeleton to my commanding officer—nor to the state authorities. If I ever went back there I might get into a peck of trouble. And most likely they would take the gold away from me anyway. That is, if there's any more in the back of that cave—and I think there is. When I get back home I'll have to get a lawyer and find out about these things."

The sergeant seemed most sincere and he certainly knew the country. Perhaps he is the son of one of the old timers out there, and thought that if I ever told the story it might prove a good joke on me. I never heard from him again and so, for many reasons, I have remained silent all these years.

What I do know is that this man knew the area and that he had in his possession a vial of black gold—not chocolate brown or reddish brown, but black — as black as the ace of spades.

INSECTICIDES KILL BIRDS, EXHAUSTIVE STUDY SHOWS

The effect of hydrocarbon insecticides on birds has been determined by an extensive scientific study recently completed by James B. DeWitt of the U. S. Department of the Interior's Fish and Wildlife Service.

DeWitt found that only .0005 percent aldrin in the daily diet of quails will kill every bird within 42 days. Daily amounts of .50 percent aldrin results in 100 percent mortality in four days.

Aldrin is a chemical relative of DDT which is considerably less toxic for

birds as well as for insects. In quails the addition of .02 percent DDT to the daily diet results in a 10 percent mortality in 150 days—but increase the amount by only .005 percent (from .02 to .025 percent) and there is 100 percent mortality within 45 days.

Pheasants stood up better under insecticides than quail. In general it was found that aldrin was the most rapid killer and strobane was the least rapid.

Death is not the only result of insecticides. At a level of .0001 percent aldrin to the daily diet of quails the hatchability of eggs fell from 87 percent to less than 42 percent.

THE **Desert** MAGAZINE
CLOSE-UPS



Nell Murbarger

The American Association for State and Local History recently announced that Nell Murbarger, author of this month's *Geysers of Whirlwind Canyon*, has been awarded the Intermountain Region Award of Merit for her "distinguished service in the cause of making Americans better aware of their local history."

During the past 10 years, Miss Murbarger has written 149 articles dealing with Nevada history; 56 on Arizona; 46, Utah; and 59 of other Western states. Many of these stories have appeared in *Desert Magazine*.

* * *

Despite the frightful initiation June Haines Betsworth had to the desert, described in this month's "Walk or Die," she and her husband are now confirmed desert lovers.

"We don't take a weekend or holiday trip into the desert without bringing back bags of rocks, boxes of drift wood, sacks of sun-whitened bones or a plant to transplant in our garden," writes Mrs. Betsworth, a Los Angeles school teacher.

* * *

John Marston, author of this month's "I Saw Black Gold from Peg-leg's Hills," is a resident of New York City where he has, since 1910, been actively engaged in practically all phases of show business.

He first appeared on Broadway as an actor in 1922. Three full length plays he has written were successfully produced. His most recent efforts have been writing for television.

Desert Readers May Renew at the Old Rates Until January 10, 1956

In a time of rising costs it seems inevitable that even a magazine must increase its rates occasionally. Since January, 1949, when the present subscription rate became effective, the materials and labor which are used to operate a printing plant have gone up from 10% to 35% in cost.

To meet these added costs, a nominal increase in subscriber rates has been announced for January 1—from the present rate of \$3.50 a year to a new rate of \$4.00 a year.

However, before the new rate becomes effective we want to give all present readers of *Desert* an opportunity to renew at the old rates. Many thousands of them already have done so, and in order that all may have ample opportunity to take advantage of the saving we will extend the renewal date at present rates to January 10, 1956. All subscriptions, new or renewal, postmarked not later than January 10 will be accepted. The rate schedules are as follows:

	Present Rates	New rates
One year's subscription	\$3.50	\$4.00
Two years (or two subscriptions).....	6.00	7.00
Three years (or three subscriptions).....	9.00	10.50
Additional years, or subscriptions in the same order.....	3.00	3.50

There will be no change in the newsstand price—35c a copy

It is the goal of *Desert's* staff to make this magazine more interesting and helpful from month to month and we want you to know that we appreciate the confidence and loyalty of our growing family of *Desert Magazine* readers.

THE DESERT MAGAZINE
Palm Desert, California

Hard Rock Shorty of Death Valley



Hard Rock Shorty sat in the shade of the leanto porch in front of the Inferno store and looked out across the floor of Death Valley where the summer heat waves were shimmering.

"Ain't always like this," he remarked to the new clerk who was fanning himself with a straw hat and wondering why he had ever taken a job in this forsaken place.

"Gits cold in the winter," Hard Rock continued. "I've seen mornin's when I had to break the ice on the spring up in Eight Ball crick so the burros could git a drink. An' ol' Pisgah Bill who wuz drivin' stage in them days came in one day and swore he'd seen 50 jackrabbits an' three coyotes hoverin' around the edge of them boilin' mud pots down the valley tryin' t' keep warm.

"That wuz the coldest winter I've seen on the desert in 40 years. Inside the shack we kept the stove redhot, an' along in midafternoon I went out to the mesquite pile to bring in some logs. Bill's pet rattlesnake was curled up on the sunny side o' the logs tryin' to keep warm.

"When that rattler saw me he started shakin' his tail—friendly, like he always does when Bill an' me come around. But there wuz no rattle. He tried it again, an' still no rattle. Finally he looked around an' saw his rattles wuz all froze solid. So he put his tail in his mouth and thawed 'em out a bit, and then started buzzin' jest like he usta do. Then he looked at me kinda silly like and slid under the log pile."

LETTERS

No Snails, Pests . . .

Twentynine Palms, California
Desert:

I appreciate you printing my letter "Making the Desert Bloom" in the November *Desert Magazine*, but would like to correct an error in which inference is made that "snails and other pests present a real problem" to desert gardens.

We do not have these pests on the desert and I credit a great deal of our success in desert gardening to this fact.

MRS. LEOMA LANE

Who Writes Hard Rock? . . .

Salt Lake City, Utah

Desert:

Come now, *mi compadre*, do you not think that after all these years of anonymity that the very capable writer of those delightfully humorous sketches of "Hard Rock Shorty of Death Valley" deserves a little consideration? Either give him the professional by-line he so richly deserves, or better yet, give us a full-page write up, with photographs, of this person in the next issue of *Desert*. I have a suspicion that here is a character, rich in desert lore, who has been forced to blush unseen, wasting away his life under a bushel-basket. *Adios, y mi saludos.*

ELWOOD STOCKMAN

Dear Elwood: I am sure the author of the *Hard Rock Shorty* tales will appreciate the fine compliment—but he insists that his name be kept a top secret. I suspect that he is wanted down in Texas for a little affair involving the ownership of some range cattle several years ago, and since the statute of limitations has not yet run out, and he is now trying to make amends for the folly of his youth by living the life of an upright citizen, he must remain anonymous.—R.H.

Nature Lovers' Classroom . . .

Mecca, California

Desert:

I enjoyed Lewis Walker's story on the Tucson Desert Nature Trails (*Desert*, Oct. '55) very much. It brought back memories of our many visits to the museum and zoo. Although we live on the desert, the zoo afforded us an excellent chance to get to know the little animals, reptiles and insects which live here.

We were impressed by the good care the caretakers give all the animals. The bobcats and mountain lions were actually purring like house pets.

TOPPER PACE

Blake's Dunes Changed . . .

San Clemente, California

Desert:

In your October magazine is an interesting story about the Algodones sand dunes which lie in the extreme southeasterly corner of California. Your author questions the findings of geologist William P. Blake who, in 1853, estimated that the dunes were about one-half the length and one-third the width that exists at the present time.

Old Man Wind can do some awesome and wondrous things. He can knock you down and he can heal and caress you. He can also move sand dunes and change the topography of an entire area in a hundred years or less.

An enormous yucca tree grew near a road I often traveled in my work as land agent for the Southern Pacific. When I first noticed it a large sand dune was located about a mile southwest of it. In a few years the dune had moved to where it covered half the height of the tree. More years went by and the dune moved to the northeast leaving the tree none the worse for its experience. The only marks upon it were some dead roots on the lower eight feet of the trunk which the tree had put out into the dune in a vain attempt to pick up nourishment. The estimate made by Mr. Blake 100 years ago as to the size of the Algodones dunes may have been correct in every respect.

FRANK B. RUTLEDGE

TRUE OR FALSE

Sharpen your wits and your pencils — it is True or False time again. Here is an easy and enjoyable way to become better acquainted with the Great American Desert, past and present. It is suggested that you score the entire family this month, and keep the totals through the year—a sort of "Family School of the Desert." If you answer 12 to 14 correctly, give yourself a fair grade, 15 to 17 is good, 18 or better is excellent. The answers are on page 42.

- 1—"Jumping cholla" is the common name of a species of desert lizard. True ____ . False ____ .
- 2—Prairie dogs, ground owls and rattlesnakes often live together peaceably in the same hole. True ____ . False ____ .
- 3—Obsidian often goes by the name of volcanic glass. True ____ . False ____ .
- 4—The famous Mormon Battalion which was part of Kearny's Army of the West was organized in Salt Lake City. True ____ . False ____ .
- 5—The ichthyosaur, whose fossil remains have been found in Nevada, was a land dweller. True ____ . False ____ .
- 6—The cliff houses built by the ancient Indians in the Southwest generally were of stone and mud. True ____ . False ____ .
- 7—Gen. Lew Wallace, author of *Ben Hur*, was once governor of New Mexico. True ____ . False ____ .
- 8—The native Washingtonia palm of the Southwest was named in honor of George Washington. True ____ . False ____ .
- 9—The copper mines at Ajo, Arizona, are open pit mines. True ____ . False ____ .
- 10—Petrified wood makes good fuel for desert campfires. True ____ . False ____ .
- 11—Walpi is the name of an Indian village on the Navajo reservation. True ____ . False ____ .
- 12—Large numbers of bats live in Carlsbad Caverns. True ____ . False ____ .
- 13—Turkeys were first brought to North America by the Spaniards. True ____ . False ____ .
- 14—Billy the Kid was an Apache Chief. True ____ . False ____ .
- 15—The *balsa* was used by the Colorado River Indians for water transportation. True ____ . False ____ .
- 16—The Salton Sea was formed during the early part of the present century by overflow from the Colorado River. True ____ . False ____ .
- 17—Prospectors have been known to locate hidden springs by noting the course of wild bees in their flight. True ____ . False ____ .
- 18—Old tires with smooth treads are better for travel in heavy sand than new treads. True ____ . False ____ .
- 19—New Mexico's famous Shiprock is visible from Albuquerque. True ____ . False ____ .
- 20—Phantom Ranch, in the bottom of Grand Canyon, is below sea level. True ____ . False ____ .

Here and There on the Desert . . .

ARIZONA

Yuma Seaport Under Study . . .

PHOENIX — Governor Ernest W. McFarland announced formation of an unofficial Port Authority Board for Arizona and said its duty would be to explore the matter of obtaining a seaport for Arizona on the Colorado River near Yuma. The governor said creation of the board resulted from a series of conferences he has held with representative Arizona citizens who have long been interested in the possibility and feasibility of developing a seaport for the state.—*Yuma Sun*

Northern Forests' Potential . . .

FLAGSTAFF — Northern Arizona forests produce enough utilizable raw material to manufacture more than 1000 tons of paper daily, a survey conducted by the Forest Service shows. The survey was prepared in response to growing interest in the availability of domestic pulpwood suitable for paper manufacture. The Coconino Pulp and Paper Co., which started manufacture of paper pulp last year, recently announced that it had doubled its capacity to 50 tons daily and expects to increase this to 100 tons within two or three years.—*Coconino Sun*

State Population Up 23.8% . . .

WASHINGTON, D.C. — The census bureau reported a continued migration westward since the 1950 census, but said the West's population growth was "well below" that of the 1940s. Arizona's population between 1950 and 1954 increased 23.8 percent. Nevada showed a 31 percent increase during this period.—*Phoenix Gazette*

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Navajo Study Industry . . .

WINDOW ROCK — The Navajo Tribal Council announced the adoption of a policy aimed at the development of industries to employ Navajos living in communities along the fringe of the Reservation. The Navajo potential labor force totals an estimated 32,150 persons, it was announced.—*Northern Yavapai Record*

Southwest Observatory Planned . . .

PHOENIX—Dr. A. B. Meinel of the University of Chicago's Yerkes Observatory announced the opening of an office in Phoenix which will be used as headquarters in a search for a new observatory site. Working with other astronomers, extensive studies will be conducted by Dr. Meinel to find a location in the Southwest for a new observatory.—*Yuma Sun*

Black Canyon Road Opened . . .

CORDES JUNCTION — A paved route from Phoenix to Prescott via Mayer was opened in late November. The rough nine-mile dirt road from Cordes Junction to Mayer has been replaced by a paved cutoff to Mayer. From there the route leads into a hard-surfaced country road to Humboldt. Four new bridges cross the Big Bug Creek on the new Black Canyon Highway.—*Phoenix Gazette*

Huachuca Improvements Planned . . .

TUCSON—More than \$33,000,000 will be spent in the next three years for construction at the Fort Huachuca military electronic proving ground, Maj. Gen. Emil Lenzner, commanding officer, announced.—*Phoenix Gazette*

Navajo School Completed . . .

WINDOW ROCK—One of the most modern school plants in the nation has been built at Window Rock on the Navajo Reservation. The school is the first of three new plants for Navajo children and includes facilities for elementary and high school classes,

an administration building, classroom building and living quarters for the faculty.—*Phoenix Gazette*

Tritylodont Fossils Discovered . . .

KAYENTA—American Museum of Natural History scientists have uncovered what they described as a "magnificent collection" of fossils in Monument Valley near Kayenta. Included in the find were a dozen skulls and several articulate skeletons of tritylodonts, long considered the "missing link" between fossil reptiles and the mammals that evolved from them. — *Phoenix Gazette*

Live Alligator Captured . . .

YUMA—Southern Pacific laborers captured a young alligator from a near-empty irrigation ditch in the Yuma Valley recently. The 15-inch long 'gator was taken after a vigorous struggle in a small pocket of water beneath a road bridge crossing Cooper Ditch, a mile past the 1st Street-Avenue C crossing. Origin of the animal has led to much speculation.—*Yuma Sun*

Colorado River Bridge . . .

YUMA — Construction was scheduled to start on the Arizona approach to the new Colorado River Bridge at Yuma. Work on the main bridge is expected to be finished by April. — *Yuma Sun*

WASHINGTON, D. C. — Three Indian Bureau superintendents will interchange assignments in Arizona and Utah, Commissioner Glenn L. Emmons announced. John O. Crow will move from Fort Apache Agency, Whiteriver, Arizona, to Uintah and Ouray Agency, Fort Duchesne, Utah; Albert M. Hawley will move from Papago Agency, Sells, Arizona, to Fort Apache; Harry W. Gilmore will transfer from Uintah and Ouray to Papago.

CALIFORNIA

Navy Boosts Road Plans . . .

EL CENTRO — Funds amounting to more than \$600,000 will be available for the construction of a new Blythe-Imperial Valley road under provisions of a condemnation-for-lease move presently underway by the Navy.

ROCKS AND MINERALS

(AMERICA'S OLDEST AND LARGEST MAGAZINE DEVOTED TO ROCKS AND MINERALS)

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ROCKS AND MINERALS

BOX 29, DEPT. D

PEEKSKILL, NEW YORK

Imperial County Supervisors were served with a complaint for condemnation of the present Blythe-Niland road through the Navy gunnery range in the Chocolate Mountains. "We hope these proceedings will be the vehicle whereby the Federal Government can pay us so we will be able to use the funds to build an alternate road," Neil Fifield, chairman of the board of supervisors, said.—*Palo Verde Valley Times*

Smog Victims Invited . . .

LOS ANGELES — Smog-plagued Los Angeles residents receive daily invitations to come to Phoenix by a billboard which stands on busy Wilshire Boulevard, in front of the Ambassador Hotel in Los Angeles. "Had Enough?" asks the sign. Three panels show a disgruntled character rubbing the air pollution from his eyes, hoisting an umbrella against the oncoming showers, and agitated in bumper-to-bumper traffic. Under the panels a line reads: "Try Phoenix—in Arizona's Valley of the Sun." The sign also advertises a Phoenix real estate firm.—*Phoenix Gazette*

Indians Fight Tax . . .

PALM SPRINGS — Agua Caliente Indians will fight any attempt to tax their lands, Tribal Council Chairman Mrs. Vyola Olinger told members of the Palm Springs City Council. "Until we can develop our land and get in a position to pay taxes," she said, "we will oppose them."—*Banning Record*

Record Land Transaction . . .

BRAWLEY — Imperial Valley's largest real estate transaction was made recently when Montana Farms sold 3200 acres of farm lands to Los Angeles purchasers at a price in excess of \$1,800,000. The land is located in three separate parcels in the Brawley area.—*Calexico Chronicle*

Donner Story for Film . . .

NEVADA CITY — The Nevada County Board of Trade has asked the county historical society to prepare an outline of the tragic Donner Party story with an eye toward interesting a major motion picture company to consider it for a film production.—*Nevada State Journal*

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Ranchers Turn to Wells . . .

CALEXICO—Colorado River water shortages are being felt by Mexicali Valley ranchers who are now sinking wells for irrigation purposes. However, James E. Wright, Coachella Valley well and water system installation engineer, branded as "positively ridiculous" reports that "a fabulous number" of pumping systems are being put in south of the border.—*Desert Rancher*

Bridge to Span Mojave . . .

VICTORVILLE — First budgeted item for the proposed Victorville to Barstow expressway to appear in the new State Highway Budget is \$1,500,000 for construction of an overhead bridge and approaches for a four lane freeway in the Victorville and Mojave River areas.—*Victor Press*

Pageant Move Proposed . . .

CALEXICO — Moving of the historic pageant of the International Desert Cavalcade from Calexico to the Mid-Winter Fair Grounds at Imperial was proposed by Don Starr, president of the Cavalcade board of directors. A committee has been appointed to study the suggested transfer.—*Calexico Chronicle*

Colorado Almost "Dusty" . . .

BLYTHE — The mighty Colorado River is now a puny creek due to subnormal moisture in the watershed since 1952. The flow of the river has been cut back considerably at Hoover and Parker Dams and virtually no water is running into the gulf, sources report.—*Palo Verde Valley Times*

NEVADA

Cattlemen Oppose Rain-Making . . .

ELKO—The Nevada Cattle Association approved a resolution opposing use of public funds to support cloud-seeding projects. Cattlemen said they had no objection whatever to rancher-paid rain-making projects, but said they objected to diverting public funds into cloud-seeding programs.—*Nevada State Journal*



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Paiutes to File Suit . . .

RENO — A house sub-committee holding public hearings on the \$43,000,000 Washoe project was told that the Pyramid Lake Paiute Indian tribe intends to file a \$200,000,000 damage suit against the Federal government. The Indians will seek to collect for damages suffered by the tribe when water was diverted from the Truckee River by the construction of Derby Dam in 1911. Attorneys for the tribe told the sub-committee that the Truckee River agreement of 1935 and the Truckee River final decree of 1944 guaranteeing a minimum flow of water to the Paiutes had not been fully complied with. The tribe estimates that it is losing 45,200 acre feet of water annually at Pyramid Lake and that the proposed Washoe project will take away another 24,400 acre feet annually.—*Humboldt Star*

Rain-Making Pact Signed . . .

CARSON CITY — Nevada's five Humboldt River Basin counties have entered a \$21,000 contract for a seven-month cloud-seeding project.



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California

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THE *Desert* MAGAZINE

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AMERICAN INDIAN HOBBYIST magazine designed for those interested in reproducing the crafts and dances of the Indian. Published 10 times a year. Subscription rates: \$2 for one year; \$3.75 for two years. P. O. Box 152, Pruess Station, Los Angeles 35, California.

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\$50.00 BUYS complete volumes, excellent condition in binders of Desert Magazines November, 1937, to March, 1951, inclusive. Robert Hemmig, Box 32216, Los Angeles 32, California.

WANTED—Back issues of Desert Magazine. Will pay \$5 for Nov. '37; \$1 for Apr. '38; \$1.50 for Sept. '38, in good condition. Desert Magazine, Palm Desert, California.

REAL ESTATE

SAVE, BUY DIRECT from Government, Surplus Farms, land, homes, etc. List \$1.00. Box 169-DMA, East Hartford 8, Connecticut.

VIEW LOTS — Palm Desert Heights. Just above Desert Magazine block. Near Shadow Mountain Club, school, church, market, bus. 70x100, \$1200 up. Paved, gas, elec., water. Restricted. For brochure write Box 65, Palm Desert, California.

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FOR SALE—164-plus acres 14 miles west Palm Springs between Cabazon and White water. J. R. Scott, 3457 Santa Ana St., Huntington Park, California.

WARM, BEAUTIFUL 80 acre desert parcel overlooking Coachella Valley. Owner will guarantee big well at his cost. \$500 per acre. One acre near Box Canyon. Has domestic water. Price \$1850, will consider trust deed or late model car. Lovely Palm Village home, pool, garden, priced for under real value at \$50,000. For any type Desert Real Estate write Ronald L. Johnson, Box 162, Thermal, California.

LIVE ON California's high desert. Forget arthritis-asthma troubles. View lots \$750 terms. Fred Wasson, Box 115, Morongo Valley, California.

MISCELLANEOUS

DESERT TEA. One pound one dollar postpaid. Greasewood Greenhouses, Lenwood, Barstow, California.

GHOST TOWN ITEMS: Sun-colored glass, amethyst to royal purple; ghost railroads materials, tickets; limited odd items from camps of the '60s. Write your interest—Box 64-D, Smith, Nevada.

LADY GODIVA "The World's Finest Beautifier." For women who wish to become beautiful, for women who wish to remain beautiful. An outstanding desert cream. For information, write or call Lola Barnes, 963 N. Oakland, Pasadena 6, Calif., or phone SYcamore 4-2378.

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INTERESTED IN Prospecting for Gold and Industrial Minerals? Join United Prospectors and read Panning Gold. Write for application: United Prospectors, 701½ E. Edgeware Rd., Los Angeles 26, California.

URANIUM MAP of Southwest. Geiger counters, scintillators, snooper, \$29.95 up. Free catalog, or better, send \$1.00 for authentic uranium map of Southwest Desert and catalog. Harry's Geiger Counters, 360 So. Hawthorne Blvd., Hawthorne, California.

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HAVE REAL FUN with desert gems, minerals and rocks. The rockhound's how-to-do-it magazine tells how. One year (12 issues) only \$3.00. Sample 25c. Gems and Minerals, Dept. J10, Palmdale, California.

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WANTED—Frontier or old revolver for Desert reader's collection. In good condition and reasonable. Roy W. Guerin, 2190 Cheryl Way, San Jose, California.

SECTIONIZED COUNTY MAPS — San Bernardino \$1; Riverside \$1; Imperial 50c; San Diego 50c; Inyo 75c; other California counties \$1.25 each. Nevada counties \$1 each. Uranium location maps: southwestern states \$1; Northwestern states \$1.50; California \$1.50; Four Corners area \$1. Westwide Maps Co., 114 W. Third St., Los Angeles.

ATOMIC RESEARCH geiger counters model B50, \$100; Model B60, \$139.95. Compare our prices. Vacationer geiger counter \$35. Guaranteed. Sadler Electronics, Box 475, Clayton, New Mexico.

PROSPECTING PARTNER wanted—active or inactive to finance trip to remote lost placer area in Arizona. I have definite valuable information. Also intend staking out 20 valuable placer claims in same area. If interested write J. G. Bell, Beaman, Iowa, RFD.

FIND BURIED TREASURE, gold and silver, with Goldak's sensational 3½ lb. "Find-It" locator, only \$49.50. Write for free literature on complete line of mineral, metal locators; Geiger and scintillation counters. Goldak, 1541 W. Glenoaks Blvd., Glendale, California.

FISHER SCINTILLA-SCOPE, 1½ inch crystal, \$487.50 retail, \$300. As above with gun type probe, \$350. Also metal locators, geiger counters. Kenneth Mayhall, Belmont, Mississippi.

KEEP KNIVES super sharp with handy "Rot-lit" knife grinder. \$1.25 Ppd. "Rotlit," 392 West Center, Springville, Utah.

BECOME A GAME WARDEN, Professional Hunter! Join Forestry, Park, Fishery Services. Good Pay! Opportunities Open! Free! Revealing "Select-Job Chart," details, job-getting secrets. Write Home Study Educators, 1036-33 La Brea, Los Angeles 19, California.

NEW! Uranium detector kit, \$8.49. Guaranteed. Postpaid. Free catalog. CMG Industries, Box 611-DM, Laramie, Wyo.

Industrial Dispersion Studied . . .

CARSON CITY—A Nevada State Industrial Dispersion committee, designed to help locate new industry so as to make it as invulnerable as possible to attack, has been established in the state by the U. S. Department of Commerce.

Seeks End to Wardship . . .

RENO—Preparation for further action on the bill to terminate Federal wardship of four Nevada Indian colonies is now underway by Congressman Cliff Young. The colonies involved are Reno-Sparks, Carson, Las Vegas and Elko. By the terms of the bill, Indians in the colonies affected would have a choice of four alternatives with regard to colony property: (1) the property could be sold and the proceeds divided; (2) the property could be conveyed to a corporation owned by the Indians; (3) the property could be conveyed to a trustee for the benefit of the Indians; (4) the property could be subdivided and transferred directly to the Indians.—*Nevada State Journal*

Land Agencies Face Crackdown . . .

RENO—Steps are being taken by the Bureau of Land Management to clamp down on private land filing agencies which are not qualified to represent applicants who are seeking public lands. W. Reed Roberts of the Bureau of Land Management in Reno cautioned all persons interested in public land acquisition to check the qualifications of private land locating firms before engaging them.—*Pioche Record*

Elephant Fossils Found . . .

GERLACH — Elwood Benner of Sparks has uncovered what promises to be the most nearly complete prehistoric elephant remains ever found in the area. The discovery was made at Gerlach. Professor Ira LaRivers of the University of Nevada said the elephant, not a true mastodon, dates back "fairly recently" in geological history—about a million years ago.—*Nevada State Journal*

Farming Areas Opened . . .

BOULDER CITY — Secretary of the Interior Douglas McKay announced the opening to settlement of eight full-time farm units in the Wellton-Mohawk division, Gila Project, in southwestern Arizona. The land opening comprises 1411.3 acres and the farms range in size from 119.4 to 155.6 irrigable acres. Total cost for a farm ranges from \$411 to \$760 and although the lands are to be sold at their appraised dry-land value, the disposal procedure is almost identical to that of homesteading.—*Needles Desert Star*

Litterbug War Declared . . .

CARSON CITY—Governor Charles H. Russell announced the start of a year-long drive to curb litterbug activities in the state. The highway patrol will cooperate in the campaign, Russell declared.—*Caliente Herald*

Storey County Petroglyphs . . .

VIRGINIA CITY — The Nevada Park Commission is considering the creation of a state park out of Storey County's 80 acre petroglyph area, located 15 miles north of Virginia City. Scientists believe the petroglyph area was the summer camping grounds of the ancient Pyramid Lake tribes. —*Territorial Enterprise*

Few Pinyon Nuts . . .

FALLON — Hunters and Indians report that there is a scarcity of pinyon nuts in the surrounding hills this year. Favorite places to hunt pine-nuts in the Fallon area are at Ione Valley, Westgate, Carroll Summit and Jobe's Peak.—*Fallon Standard*

NEW MEXICO

Military Hunting Stopped . . .

WASHINGTON, D. C.—Authority of military personnel to hunt on the Ft. Bliss firing range in southern New Mexico has been suspended. The office of the Secretary of the Army advised Sen. Dennis Chavez that the suspension had been ordered by the Ft. Bliss commandant, Maj. Gen. P. W. Rutledge, pending an investigation into the matter. Meanwhile, Senator Chavez announced that he will introduce legislation to prevent servicemen from hunting on a military range without state hunting licenses.

Rare Desert Shrimp Found . . .

LOVINGTON—Fresh water shellfish, commonly known as desert shrimp, have been found in a pond six miles south of Lovington. The shellfish are similar to the Fairy Shrimp found earlier near Barstow, California, which attracted national attention.

Apaches Win Approval . . .

SANTE FE—Peace officers of the Mescalero Apache tribe may serve as deputy sheriffs so long as they meet all other qualifications, the attorney general's office ruled.—*Alamogordo Daily News*



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Fort Union Now Monument . . .

LAS VEGAS—Old Ft. Union was officially made a United States National Monument. Twenty thousand dollars were raised during the effort to create the monument. A group called Ft. Union, Inc., organized to preserve the old fort as a historical center, raised the money.—*New Mexican*

Radar Plants Confirmed . . .

AJO—The Air Force confirmed reports that it plans to build radar stations at Ajo and Nogales at a cost of nearly \$2,500,000 each. Radar stations of this type are usually manned by about 15 officers and 150 airmen, the Air Force said. The two Southern Arizona stations presumably will complete a state-wide network that has been under discussion for some time. —*Phoenix Gazette*

Homesteaders Want Mineral Rights

ALBUQUERQUE — Homesteaders in the Lindrith-Cuba area have organized the New Mexico Homestead Lands Association for the purpose of obtaining from the government a conveyance of the mineral rights which were originally reserved. If this cannot be accomplished, then the association will seek the adoption of regulations which will give the landowners protection and rights against prospectors. The association plans a state-wide meeting in Albuquerque with state Congressional representatives.—*Torrance County News*

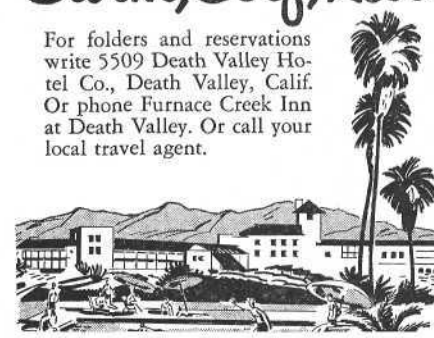
In Death Valley

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For folders and reservations write 5509 Death Valley Hotel Co., Death Valley, Calif. Or phone Furnace Creek Inn at Death Valley. Or call your local travel agent.



UTAH

Salt Lake Dike Studied . . .

SALT LAKE CITY — A panel group was organized at the State Capitol to investigate the feasibility of constructing a dike on the eastern side of the Great Salt Lake to form a fresh water lake. A \$15,000 appropriation was recently made to the road commission for the survey. Elected chairman of the study group was Grant E. Burns, Davis County planning director. —*Box Elder Journal*

Echo Park Dam Dropped . . .

DENVER, COLORADO — Congressmen from four Western States have given up their fight to get a huge dam built in Dinosaur National Monument—a project which aroused much opposition from conservation groups throughout the nation. Senator Clinton Anderson of New Mexico announced the decision. He said the Senators and Representatives agreed "not to try to reinsert Echo Park Dam in any form" into the Upper Colorado River bill. —*Los Angeles Times*

Prehistoric Fossil Uncovered . . .

HANKSVILLE — An elephantine monster with ponderous legs, a long neck and tail, and a tiny head is being

unearthed near Hanksville by paleontologic teams from Yale University and the University of Utah. The animal, which measures 50 feet long and 12 feet tall, resembles the brontosaurus found near Fruita in 1900. The species roamed the earth some 130 million years ago. Joseph Gregory, curator of vertebrate paleontology at Yale is in charge of the excavation work. —*Dove Creek Press*

Indian Farms Uncovered . . .

PARAGONAH — Evidence that a group of Indians came to Utah nine centuries before the Mormons and built a prosperous farming community near Paragonah has been discovered, UCLA archeologists reported. Dr. Clement Meighan said he and his staff found evidence that the region was settled by Indians around 1000 A.D., apparently arriving from Arizona. In 1200 A.D. these Indians were either the victims of a severe drought or returned to Arizona. —*Phoenix Gazette*

22 Litterbugs Cited . . .

SALT LAKE CITY—O. Leo Robinson, Salt Lake County health director, signed complaints against 22 persons in one day, charging them with spilling rubbish and other matter on the streets. "Repeated warnings, fines and even threatened jail sentences have not stopped these flagrant violations, but we are going to keep after violators until the practice of strewing the streets with debris is halted," Robinson declared. —*Salt Lake Tribune*

Death Valley Route Traced . . .

CEDAR CITY—William Flanigan, 79, veteran Southern Utah explorer, and Robert Pace of Thistle, completed in eight days the trip from Cedar City to Death Valley that took three months by the ill fated Death Valley pioneers in 1848-49. Flanigan and Pace would like to see a marker placed at the point on the Spanish Trail where the Death Valley party turned west on their "short cut" to the Coast. They also suggested the placement of other markers at appropriate locations on the entire length of the trail. The two men made the trip in a jeep. —*Washington County News*

Eocene Fossils Discovered . . .

DUCHESNE — Fossils collected from the banks of the Duchesne River have been identified as reptiles of the Eocene epoch some 60,000,000 years ago. Most of the bones found are of turtle shells, but a crocodile and a gar fish also were present in the collection. —*Vernal Express*

New and Improved Products for Desert Living

PORTABLE GEIGER-MUELLER COUNTER FEATURES PROBE

The Menlobab Mark VII, manufactured by the Menlo Research Laboratory, Menlo Park, California, is a new portable geiger-mueller counter with separate probe. The Mark VII features 0.01 mr/hr sensitivity and has a three-range stepping switch. Response to radioactivity is reflected by a flashing NE5 neon bulb which also serves to illuminate the meter face at night. Ear phones, supplied with the instrument, are connected by tip-jacks when desired. The instrument weighs four-and-a-fourth pounds complete with batteries and sells for \$133.50.

SCINTILLATOR DESIGNED FOR VERSATILE USE

The Jeb "Special Groundaire" scintillation counter features an inch-square sodium iodide crystal, four sensitivity ranges, two time constants, rugged deep-drawn aircraft construction aluminum case, carrying strap, external probe and three-and-a-half inch Simpson meter and battery drain compensation control for longer battery life. The Jeb Special can be used from aircraft, automobile or while on foot. Manufacturer is Jeb Instruments, 4641 Hollywood Blvd., Los Angeles 27, California. The instrument sells for \$249.50.

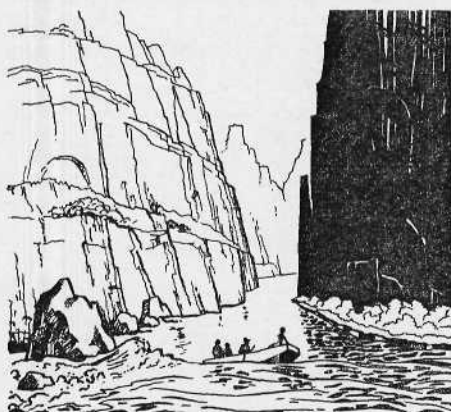
MAKE YOUR OWN GEIGER COUNTER WITH NEW KIT

The "do it yourself" trend has finally reached the geiger counter industry. Sierra Scientific Co., 5415 York Blvd., Los Angeles, has perfected a new kit from which can be assembled a geiger counter with the latest of electronic features. Small and compact, the counter has the sensitivity of the more expensive instruments, the manufacturer claims.

NEW CATALOG ON GEIGER COUNTERS

The Nuclear Measurements Corporation, 2460 N. Arlington Ave., Indianapolis, Ind., recently issued an eight-page bulletin describing and illustrating its complete line of portable geiger and scintillation counters. Specifications, construction features and prices of the three scintillation counters are covered in the bulletin.

GLORIOUS ADVENTURE



In the Canyons of the Colorado and San Juan Rivers

Sturdy boats and skilled boatmen-guides insure safe and thoroughly enjoyable passage through the most colorful canyons of the Southwest desert.

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Mexican Hat to Lee's Ferry
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Special charter trips may be arranged.
Write for 1956 summer schedule and rates.

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MINES and MINING

Sacramento, California . . .

The western governors' minerals policies conference was told by a committee on mineral economics that tariffs ranging from 15 to 100 percent for most minerals imported to this country from abroad were necessary to maintain a healthy domestic mining industry. Present tariffs average less than 10 percent, the committee said. Without higher duties or the substitute payment to U.S. producers of a percentage of the tariffs now collected, "the outlook of the mineral industry in the United States is cloudy indeed," the committee said. In citing the necessity for higher import duties, the committee pointed out that "thorium and antimony are no longer mined; chrome, fluor spar, manganese, tungsten, gold, silver, zinc, mercury and uranium are able to plan for a future ranging in length from a few months to a few years; only copper and, to a lesser extent, lead can clearly see a future."—*Salt Lake Tribune*

Lucerne Valley, California . . .

Eight placer mining claims on Cushenbury Grade have been sold to Kaiser Steel Corporation for \$1,530,000. The claims, in a high grade limerock area, will be mined on a contract basis for Kaiser by the projected Permanente cement plant to be erected along the grade. Mr. and Mrs. Allan S. Vinnell and Mr. and Mrs. Clair W. Dunton of Alhambra sold the property to Kaiser.—*Victor Valley News-Herald*

Elko, Nevada . . .

Renewed petroleum drilling activity in Nevada wildcat areas was predicted by Louis Gordon, executive secretary of the Nevada Mining Association. Gordon pointed out that the Secretary of the Interior has approved the Rabbit Creek unit in Elko County for the Gulf Refining Co. The unit is small, as units go in Nevada, comprising less than 10,000 acres. Gulf has entered into an agreement with the Richfield Oil Co. to drill a well on the unit at an early date. The Shell Oil Co. has unitized an area along the Utah-Nevada border to be known as the Baker Creek Unit.—*Tonopah Times-Bonanza*

McDermitt, Nevada . . .

Jay A. Carpenter, retired head of the University of Nevada's school of mines, reported that a mercury deposit valued at \$2,000,000 has been blocked out on the Nevada-Oregon state line near McDermitt. The deposit, according to Carpenter, is owned by the Shawano Development Corp. of New York. More than 35,000 tons of mercury ore has been blocked out by rotary drilling at Shawano's Bretz Mine, near the Sun Oil Company's Cordero Mine. The present government guaranteed price for a 76-pound flask of mercury is \$225, but open market prices in recent months have been from \$265 to a high of \$320.—*Pioche Record*

Lovelock, Nevada . . .

Three thousand tons of tungsten ore have been stockpiled at the Vincoze Brothers mine at Ragged Top, west of Lovelock. An estimated 120,000 tons of ore are in sight at the mine, according to geologists. A camp has been established at the mine. Five men are employed in the operation.—*Nevada State Journal*

Alamogordo, New Mexico . . .

A resurgence of interest in copper deposits in the Sacramento Mountains near Alamogordo has brought new mining companies into the field, with prospects good for an early start of strip mining operations in at least one and possibly two locations. An Arizona firm, headed by Jack Lowe and L. E. Broadhurst, was moving heavy machinery into the mountains preparatory to opening work on the Milross group of claims. Operations were scheduled to start by another firm on claims leased from Fred Dale of Mayhill. Dale leased two claims to the Star Mining Co. of Menard, Texas.—*Alamogordo Daily News*

Phoenix, Arizona . . .

Mining property valuations in Arizona, after declining the last few years, have reached their highest peak in 24 years, it was disclosed by a report of the state department of mineral resources. Final 1955 taxable valuations of mining property totaled \$199,502,383, for the highest figure since 1931 when the total was \$243,000,000. Last year's mine valuations were \$172,319,348, the report stated.—*Phoenix Gazette*

Yerington, Nevada . . .

Standard Slag of Gabbs has announced plans for extensive iron ore mining operations near Yerington. Five men will be employed in the open pit mining operation and Wells Cargo has been given a contract to haul the ore. The ore body is regarded as one of the richest in the State. The property was acquired by Hans and Fritz Jensen of Smith Valley several years ago and is now owned by Mrs. Hans Jensen of Hawthorne. Standard Slag is mining on a royalty basis.—*Nevada State Journal*

Eureka, Nevada . . .

Excellent oxidized lead-silver-gold ore has been encountered on the north 850-foot level of the T. L. Shaft of the Eureka Corp., Ltd. A 45-ton shipment of the first development ore was made to the Midvale Smelter at Salt Lake Valley, Utah.—*Pioche Record*

Elko, Nevada . . .

The Nevada Oil Chemical Co., Inc., announced that it will reopen the old Catlin oil shale plant two miles southwest of Elko. A new process will be used to extract oil and wax from the shale, Ben I. Rankin, president of the company said. He also indicated that a market already has been secured for the products.—*Pioche Record*

TREASURE HUNTERS

New type metals detector. Distinguishes metals from black magnetic sands. Ideal for locating gold nuggets, placer deposits. Detects metals under salt water. Locates coins, jewelry on beaches. Free from false detections. Each unit supplied with two different search coils. Ask for free literature.



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PHOENIX, ARIZ.

Sulphur, Nevada . . .

Sulphur Products, Inc. of Sulphur, Nev., is shipping 50 tons of 35 percent soil sulphur daily, the company reported. Nearly all shipments are being made in self-sealing 100 pounds paper bags which are asphalt lined to prevent the sulphur's chemical attack on the paper. Sulphur shipments are being made to Arizona, Washington, Idaho, California and Oregon where it is used to improve agricultural soil. Besides neutralizing alkali, it releases locked-up plant food and replenishes the soil with sulphur.—*Nevada State Journal*

Las Vegas, Nevada . . .

Secretary of the Interior Douglas McKay said most of this nation's high grade ores have been depleted and the U. S. now faces a growing dependence upon imports to meet mineral needs. "No longer can we fight a war or sustain an industrial economy without the aid of materials from foreign sources," McKay told the American Mining Congress convention. The U.S. is heavily dependent upon imports of tin, chromium, nickel, manganese and bauxite, he said.—*Nevada State Journal*

Good Springs, Nevada . . .

A promising strike of commercial lead-silver ore has been made by Olympic Uranium, Inc., at its Bell mine at Good Springs, company president W. W. Jacobson reported. The vein has been opened for a lateral distance of 80 feet, is eight feet high and five feet wide and should net Olympic \$30 per ton after royalty payment, Jacobson said. Initial shipments should reach 35 tons per week, he added.—*Pioche Record*

Battle Mountain, Nevada . . .

United Mercury Corporation announced that it will begin production immediately on a site near Battle Mountain. The company has completed an extensive development program which included construction of roads into the area and housing. The water system, ore bins, conveyors and other processing facilities are now ready for operation and piers were constructed for the placing of a kiln with 100-ton daily capacity. The kiln is now installed. Assays on ore already stockpiled show an excess of five pounds of mercury per ton.—*Nevada State Journal*

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DUKE'S RESEARCH LABORATORY
Box 666, Dept. B, Hot Springs, New Mexico

New Mining Regulations Set For Death Valley Monument

The Department of the Interior recently released regulations which will govern the surface use of claims in the Death Valley National Monument:

(1) The claim shall be occupied and used exclusively for mineral exploration and development and for no other purpose except that upon written permission of an authorized officer or employee of the National Park Service the surface of the claim may be used for other specified purposes, the use to be on such conditions and for such period as may be prescribed when permission is granted.

(2) The owner of the claim and all persons holding under him shall conform to all rules and regulations governing occupancy of the lands within the National Monument.

(3) The use and occupancy of the surface of mining claims as prescribed in subparagraphs (1) and (2) of the paragraph shall apply to all such claims located after the date of the Act of June 13, 1933 (48 Stat 139, 16 U.S.C. 447), within the limits of the National Monument as fixed by Proclamation No. 2028 of February 11, 1933, and enlarged by Proclamation No. 2228 of March 26, 1937, and to all mining claims on lands hereafter included in the National Monument, located after such inclusion so long as such claims are within the boundaries of said Monument.

(4) Prospectors or miners shall not open or construct roads or vehicle trails without first obtaining written permission from an authorized officer or employee of the National Park Service. Applications for permits shall be accompanied by a map or sketch showing the location of the mining property to be served and the location of the proposed road or vehicle trail. The permit shall be conditioned upon the permittee's maintaining the road or trail in a passable condition as long as it is used by the permittee or his successors.

(5) From and after the date of publication of this section, no construction, development, or dumping upon any location or entry, lying wholly or partly within the areas set forth in subdivisions (i) to (iii) of this subparagraph, shall be undertaken until the plans for such construction, development, and dumping insofar as the surface is affected thereby, shall have been first submitted to and approved in writing by an authorized officer or employee of the National Park Service.

(i) All land within 200 feet of the center line of any public road.

(ii) All land within the smallest legal subdivision of the public land surveys containing a spring or waterhole or within one quarter of a mile thereof on unsurveyed public land.

(iii) All land within any site developed or approved for development by the National Park Service as a residential, administrative, or public campground site. Such sites shall include all land within the exterior boundaries thereof as conspicuously posted by the placing of an appropriate sign disclosing that the boundaries of the developed site are designated on a map of the site which will be available for inspection in the office of the Superintendent. If not so posted, such sites shall include all land within 1000 feet of any Federally owned buildings, water and sewer systems, road loops, and camp tables and fireplaces set at designated camp sites.

(b) Use of water. No works or water system of any kind for the diversion, impoundment, appropriation, transmission or other use of water shall be constructed on or across Monument lands, including mining claims, without a permit approved by an authorized officer or employee of the National Park Service. Application for such permit shall be accompanied by plans of the proposed construction. The permit shall contain the following conditions:

(1) No diversion and use of the water shall conflict with the paramount general public need for such water;

(2) Such water systems shall include taps or spigots at points to be prescribed by the Superintendent, for the convenience of the public; and

(3) All appropriations of water, in compliance with the State water laws, shall be made for public use in the name of the United States and in accordance with instructions to be supplied by an authorized officer or employee of the National Park Service.

(c) Permits. Application for any permit required by this section shall be made through the Superintendent of the Monument.

(d) Filing of copies of mining locations. From and after the publication of this paragraph, in order to facilitate the administration of the regulations in this part, copies of all mining locations filed in the office of the County Recorder shall be furnished to the office of the Superintendent, Death Valley National Monument, by the person filing the mining location in his own behalf or on behalf of any other person.

(Sec. 3, 39 Stat. 535, as amended; 16 U.S.C. 3)

(F.R. Doc. 53-106-07; Filed, Dec. 22, 1953; 8:45 a.m. Amended F.R. Doc. 55-2519; Filed, Mar. 28, 1955; 8:46 a.m.)

The General Rules and Regulations also designate all parks and monuments as wildlife sanctuaries and prohibits the hunting, killing, wounding, frightening or capturing or attempting to do the same. The law also prohibits the unauthorized possession or use of firearms.

Section 1.91, paragraph (a) of the General Rules and Regulations, Penalties states: "Any person who violates any provision of the rules and regulations in this chapter, or as the same may be amended or supplemented . . . shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not more than \$500 or imprisonment for not exceeding 6 months, or both, and be adjudged to pay all costs of the proceedings."

Sacramento, California . . .

Four of six governors attending the Western governors' minerals policies conference called for either a return to the gold standard or modification of laws which would not let the gold price seek its own level. However, the governors were warned by Senator Alan Bible of Nevada that the outlook for a return to the gold standard was "as black as the ace of spades." — *Battle Mountain Scout*

Santa Fe, New Mexico . . .

Manuel Lujan, president of the Petaca Mining Corp., which owns mica deposits north of Santa Fe, took issue with announced government plans to speed efforts to develop substitutes for mica. Earlier the state Economic Development Commission also protested the proposed government expenditures for research and development of mica substitutes.—*New Mexican*

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BOOM DAYS IN URANIUM

Thorium May Compete With Uranium as Future A-Fuel

Engineer Michael D. Obele of the American Mineral Development Company believes thorium will compete with uranium for future atomic energy usage. Recent technological advances indicate that thorium may be more desirable than uranium for many purposes, he said.

He based his claim of a bright thorium future on the fact that thorium is safer to handle than uranium.

The Brookhaven National Laboratory recently designed a thorium reactor which, if it meets its engineering potential, could make the uranium reactor, like that used in the Nautilus, obsolete.

The present reactors must be charged with uranium. Fission is controlled with cadmium rods which absorb the neutrons. This slows down the rate of fission and when the uranium is exhausted the reactor must be opened and the highly poisonous waste materials cleaned out before the reactor can be operated again.

The future of thorium is brightened by two additional factors, thorium metallurgy

and new research programs in the rare earths field.

Lindsay Chemical Co. has recently completed a \$2,500,000 plant for the processing of thorium concentrates. The Consolidated Edison Co. of New York announced that it will use both uranium and thorium in its proposed power plant at Indian Point, N. Y.—*Pioche Record*

Land Bureau to Issue Mine Leases in Lake Mead Area

Leases for mining of uranium and other hard rock minerals in land within the Lake Mead recreational area will be issued by the Bureau of Land Management under special regulations, according to Superintendent Charles Richey of Boulder City.

Means to facilitate a uranium development program in lands of the recreation area created by construction of Hoover Dam were requested by the AEC and numerous prospectors.

The National Park Service pointed out that while a national park is not involved, the regulations specifically prohibit unnecessary damage to vegetation, pollution of the waters of Lake Mead and erection of unsightly buildings.—*Nevada State Journal*

Nation Has Large A-Bomb Supply, Scientist Says

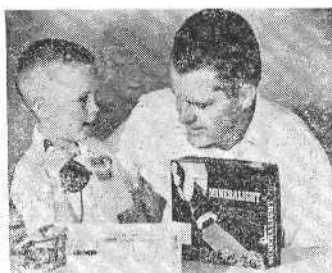
Dr. Ralph E. Lapp, prominent nuclear scientist, said this country's stockpile of atom bombs already "amounts to several tons of TNT for every inhabitant of our planet."

It is so fantastically large, he said, there is no point in keeping it secret. Dr. Lapp called on President Eisenhower to disclose its dimensions, saying this "could be a potent force for peace."—*Salt Lake Tribune*

Discovery of uranium about 45 miles from Yerington along the Walker River was reported by Gordon P. Burnet, Frank A. Williams and James A. Ellis who own 53 claims in Lyon County. They report their latest discovery contains an ore known as kasolite, previously known only in the Belgian Congo. The discovery was made at an elevation of 6500 feet. About 40 tons of ore have been stacked at the mine.—*Territorial Enterprise*

The sale of uranium prospecting permits on two units of Fort Apache Indian Reservation has brought more than \$43,000 into tribal coffers, John O. Crow, agency superintendent reported. As a result of interest shown in the sale, it is expected that additional tribal lands on the Fort Apache reservation and the adjoining San Carlos reservation may be offered.—*Mining Record*

The government plans to set up a \$4,000,000 nuclear reactor for development of the atomic airplane. The National Advisory Committee for Aeronautics announced that the site has been chosen for the test installation near Sandusky, Ohio, where research will be carried out on problems of designing and building a nuclear powered aircraft.—*Salt Lake Tribune*



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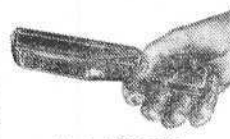
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Vertical Ore Vein Puzzles Moab Uranium Co. Officials

Moab Uranium Co. officials announced that a new uranium strike has been made which has them puzzled. The strike is on the Happy Shep claim in Moab Uranium's Mount Hillers group at the south base of Mount Hillers in the Henry Mountains. The strike might easily be of bonanza proportions but because of a freakish formation there is no way to accurately estimate its worth, the company said. On the south side of Mount Hillers the Morrison formation for more than a mile stands up and down, instead of lying horizontal as it usually does.

Since drilling was not feasible, Moab Uranium drifted in from the base of the outcrop, more than 60 feet below the highest point. Miners uncovered a vertical vein slightly more than a foot wide after tunneling 86 feet. A chemical assay showed a .26 percent uranium content. A new method of mining may have to be devised in order to make the new strike economically productive.—*San Juan Record*

Uranium Strikes May Return Boom Days to Ballarat

Uranium in commercial quantities has been found in Pleasant and Happy canyons in Panamint Valley, California. No longer a ghost town, Ballarat, on the valley floor directly in front of the two canyons in the Panamint range, is headquarters for many of the 50 or so mining men in the region. Many are active in developing gold, silver and tungsten claims as well as uranium.

Ore registering .18 percent uranium has raised hopes that Ballarat's boom days will return.—*Mining Record*

Dr. Armand J. Eardley, dean of the College of Mines and Minerals Industries at the University of Utah, predicted that the military requirements of the present uranium ore buying program will be met by the end of 1955—seven years ahead of schedule. The uranium ore domestic purchasing agreement is supposed to last until March 31, 1962, but the U. S. apparently is far ahead of schedule, he declared. — *Battle Mountain Scout*

Big Uranium Discovery Made South of Austin, Nevada

Austin, Nevada, once one of Nevada's richest mineral districts, came into prominence again recently with the announcement of a radioactive ore body discovery six miles south of town. The ore is located on the Diamond claim of Uranium Mines, Inc., operators of the Runberg mine.

Company officials believe the ore can be mined by open pit methods. Engineers estimate that between 50,000 and 75,000 tons of ore can be taken from the vein which lies at depths of only 12 feet. The vein is 35 feet wide.

Minerals occurring in the vein structure are autunite and tobernite, two ores which carry uranium.

At present development work at the site is being conducted by Uranium Mines, Inc., and Apex Uranium.—*Pioche Record*

Union Uranium Company President T. O. Matkins reports that his firm has acquired half interest in 131 mining claims in Washington County, Utah. The company has also purchased the Slick Rock Mine in San Miguel County, Colorado. — *Dove Creek Press*

House Investigators Probing Frauds by Uranium Brokers

Harold H. Cook, a spokesman for the National Association of Securities Dealers, told the House sub-committee on interstate and foreign commerce that the NASD has investigated all 167 of its member firms in the states of Arizona, Colorado, Wyoming, Utah and New Mexico. As a result of these examinations, 56 complaints have been filed in that district.

Two members of the House committee, Reps. Arthur Klein (D-NY) and John R. Bennett (R-Mich), agreed that some of the practices of certain uranium brokers "are a fraud on the public" and are akin "to racketeering." They were referring specifically to commissions on stock deals ranging up to 33 percent and to certain option agreements.

Rep. Klein said the sub-committee's investigations earlier this year revealed that in addition to charging high commissions, uranium brokers sometimes take options to buy up to a million shares at less than a cent a share.—*Nevada State Journal*

Old Mines Best Place to Find U-Ore, Expert Says

Uranium is found with other minerals and most discoveries in California have occurred in areas where there are mines which have yielded lead, gold, silver or other elements, according to Dr. D. Foster Hewett, a member of the United States Geological Survey for the past 44 years.

He recommends that uranium prospectors first study at least 30 minerals in which the radioactive ores are most likely to occur before setting off on any prospecting venture. Actually, Dr. Hewett said, there are 162 minerals in which uranium-thorium may appear.

"The Miracle Mine, top California uranium producer, is located in a group of old tungsten deposits. Go to the old mines," Dr. Hewett recommended. "Chemical tests are costly and sometimes don't agree," he added. "Send your samples to the Atomic Energy Commission or the U. S. Geological Survey. They will give you an EU (equivalent in uranium—this may be misleading in that nonfissionable thorium may also get a high EU reading) reading on your ore." — *Pioche Record*

Plateau Uranium Interests Concerned Over Vanadium

Mounting stockpiles of vanadium in AEC and General Services Administration warehouses are causing grave concern to uranium interests on the Colorado Plateau. Adding uncertainties to the situation is the proposal of the AEC to establish vanadium tailing ponds at certain mills in the area. Vanadium removal and processing allegedly accounts for between 50 and 70 percent of the cost of uranium milling in the United States.

It has been reported that the United States has sufficient vanadium in stockpile to fight a three year war without another ounce of domestic production. — *Dove Creek Press*

Robert Lopez of Las Vegas reported recently that he and two partners have discovered rich uranium, monazite and thorium deposits in southern Nevada. The three men prospected the area by airplane. The discovery was made 11 months ago, but public announcement was withheld pending court settlement of the land ownership question.—*Nevada State Journal*

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Colonial Co. Takes Over Control of Thorium Corp.

Colonial Uranium Co. has acquired control of Thorium Corporation of America. Robert I. Ludwig, Colonial president, said the company assumed control with the recent acquisition of all outstanding TCA stock. This means that Colonial will take the lead in filling the \$1,000,000 contract which TCA holds with Lindsay Chemical Co. for production of thorium concentrates. It also brings Colonial a larger share of other important interests owned by TCA.

"Colonial and TCA now plan to embark on an early program to create milling facilities for processing thorium ores now obtainable in Colorado, Wyoming and New Mexico," Ludwig said.—*Battle Mountain Scout*

A uranium deposit described by a government official as "ten times better than the remaining prospects on the Colorado Plateau," has been discovered 30 miles north of Austin, Nevada. The large deposit, worked as the Hart Uranium Mine, was discovered in March. The development thus far consists of about 40 bulldozer cuts. Owners estimate a 3,000,000-ton area of good ore, with uranium being found in every location hole and in the road cuts. The uranium occurs in lake bedded tuffaceous sediments in layers up to 12 feet in thickness, and in outcrop for nearly seven miles in length and two miles in width.—*Nevada State Journal*

The sale of 159 uranium claims including the rich King Edward and King James claims, for a consideration of over five million dollars was consummated recently. The claims originally were located by Seth and A. Shumway and then turned over to Ransom Brothers Mining Company of New Mexico on a working lease option. The claims are all in the upper Cottonwood Wash area of San Juan County, Utah. The entire contracts were bought by Jay Bettles of Wallace, Idaho, mining promoter, who said the contracts will be turned over to two companies from the Couer d'Alene country.—*Dove Creek Press*

Uranium ore taken from open cuts at the Happy Joe Mine, a newly developed property at Sun Flower Flat near Mountain City, Nevada, indicate that the discovery is of major proportions, according to Leon and Joe Belaustegui and mining engineer Otto Radley. Five of the 45-ton carloads assayed at .34 percent for a yield of \$46 per ton, while the remaining three cars assayed at .5 percent or \$130 per ton.

Purchase of the Arcturus and Rusty Pike claims in Inyo County, California, for \$750,000 was announced by a spokesman for the Apache Uranium Corp. and the King Solomon Mining Co., Inc., of Las Vegas, Nevada. The properties, which lie approximately 50 miles northwest of Baker in the Ibox Mining district, were purchased from Lucian Gaskins, a Los Angeles prospector.—*Nevada State Journal*

Federal Judge William M. Byrne ruled in Los Angeles recently that the government cannot be sued for damages resulting from atomic bomb detonations because it does not fall within the area of claims in which the government may be made a party to a legal action. The ruling was handed down in the case brought by the Bartholomae Corp. for \$5000 damages to the Fish Creek ranch 150 miles north of Frenchman's Flat.—*Nevada State Journal*

Esmeralda, Nevada, County Auditor and Recorder Lena Hammond reports that uranium claim filings are continuing to come into her office. Filings totaled 6127 for the first 11 months of 1955. County commissioners have also granted many prospecting permits with option to buy.—*Battle Mountain Scout*

Official Predicts Bright Future for Atomic Industry

Newton I. Steers, Jr., president of Atomic Development Mutual Fund and formerly employed by the Atomic Energy Commission, made the following predictions:

The first atomic powered aircraft will be completed in five years. Because of its great weight, it will probably be a seaplane.

In 10 years all the Navy's capital ships and submarines will be atomic powered.

By 1965 about 40 percent of new electric generating capacity built will be atomic powered.

By 1957 uranium mining in the Free World will be a \$400,000,000 a year industry.

Steers contends that atomic energy is the prime growth industry in the nation. It stands today where the chemical industry stood 20 years ago and where electronics stood 10 years ago.—*Mining Record*

Moab Uranium Co. and Sovereign Uranium, Gas and Oil Co. have begun joint venture development of 32 mining claims in Mineral Canyon near the Green River west of Moab, officials of the two companies announced. Equipment has been moved to the canyon and work started on a new 300-foot drift to follow a previously located vein. Over 370 tons of commercial ore was shipped during previous development work, records show.—*Dove Creek Press*

Anaconda Co. has already mined enough uranium ore at its Jackpile Mine near Grants, New Mexico, to run the firm's mill through 1962 — termination date for domestic ore purchasing, Roy Glover, Anaconda board chairman, announced. Glover said he expects the price of uranium to drop unless there is an extension of the purchasing act. Anaconda is considering going into the nuclear reactor field, he added.—*Salt Lake Tribune*

The "uranium-range war" is continuing in Northwest New Mexico according to the *Uranium City News*. Violation of property rights is being claimed by both prospectors and ranchers. The latter are ired at open prospect holes and trenches endangering livestock while prospectors, holding leases on ranch land, feel they are entitled to carry on mineral exploration operations.—*Eddy County News*

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ADVANTAGES, DISADVANTAGES OF WATER, KEROSENE COOLANTS

Here are the pros and cons in the water versus kerosene coolant for diamond saw work controversy. For many years the oil-kerosene mixture was a standard for lapidaries, but in recent years various types of water soluble coolants have been introduced.

A few disadvantages of the oil-kerosene

mixture are that: it is messy; it is difficult to wash from the sawed specimen, often taking weeks to evaporate from some surfaces; it is inflammable; it tends to form a heavy, thick, messy sludge in the saw sump; some people find kerosene irritating to the skin; and it is more costly than the water soluble mixtures.

On the other hand, the kerosene mixture is an ideal "flushing" agent and is effective as a rust preventing and surface lubricating agent.

One of the greatest advantages of water mixtures is that they may be quickly and easily washed from the specimen by simply rinsing in plain water. They are much less messy to use. A few people, however, report skin irritation from the water solutions too.

An important factor to remember in choosing a coolant is the equipment requirements. Kerosene will enter into a crevice where water would not be so likely to penetrate and cut away the lubrication on a bearing thus causing it to wear. On the other hand, a number of saws have been constructed with the metal rods that support the carriage secured at their ends on hardwood. Kerosene and oil will offer no difficulties here, but water has been known to warp the wood.—*The Mineralogist*

DISTINGUISHING FEATURES OF QUARTZ, PRECIOUS TOPAZ

How can you distinguish quartz topaz from precious topaz? Here are a few basic differences: Quartz topaz is a hexagonal silicon dioxide while precious topaz is an orthorhombic aluminum fluo-silicate. Quartz topaz is limited to the yellow-brown color while precious topaz also comes in pink, blue, green and colorless varieties. Specific gravity of quartz topaz is 2.65 and hardness on Mohs' scale is 7. Precious topaz is 3.53 and 8 respectively.

Since precious topaz is relatively rare, most of the gem stones seen in this country are quartz topaz, but even these are tough and durable. Quartz topaz is one-fifth lighter than diamond and can be carved into cameos, intaglios, etc.

An easy way to tell the quartz from the precious is by rubbing the stone. Precious topaz will pick up small bits of paper after it is rubbed.

The variety of quartz topaz known as citrine is one of the most fashionable gem stones, being particularly adapted for use in rings, brooches, bracelets and lapel ornaments.—San Jose, California, Lapidary Society's *Lap Bulletin*

SAPPHIRE IS RUBY'S TWIN

The sapphire is a twin to the ruby having exactly the same composition except for color. The ruby is red and the sapphire a variety of other hues. The true and most highly prized sapphire color is Kashmir blue.

The sapphire has a hardness of nine and belongs to the corundum family. Its crystal form is hexagonal and it has no cleavage. Its fracture is conchoidal.

Ancient people believed the sapphire was the destroyer of poison and also that it would protect the wearer from fever.

The "Gem of the Jungle" was the largest sapphire ever found, weighing 958 carats. It sold for \$100,000 and was discovered when a bolt of lightning uprooted a tree, revealing the stone in the roots.—Verdugo Hills, California, Gem and Mineral Society's *Rockhound News and Views*

The Minnesota Bearing Co. advises that a sealed self-aligning ballbearing unit in your lap equipment should be greased sparingly—one squirt from a grease gun. Too much grease causes heat and expansion which can blow out the retainers and ruin the bearing. Oil-type bearings can and should be oiled frequently for excess oil runs out.—Minnesota Mineral Club's *Rock Rustler's News*

If you are having trouble sizing cabs to fit bezels, try this: In addition to marking the stone with the correct template size, outline the next largest size and when you saw, nibble or grind to shape, use the outer marking as a guide. This gives you a safety margin for errors and slips. Then shape the top and finish it completely and then grind the bevel to fit the bezel. This method takes longer, but you will not end up with the stone too small to use.—Minnesota Mineral Club's *Rock Rustler's News*

Iris agate slices will show rainbow colors without polishing if you cover the surface with transparent Scotch tape. After sawing the iris agate into very thin slices, clean and dry them and then put the tape on both sides. The same effect can be obtained by spraying the sawed surface with clear lacquer.—Verdugo Hills, California, Gem and Mineral Society's *Rockhound News and Views*

If your dopping wax is breaking between the dop stick and the wax, the dop wax is probably too brittle. It can be made more pliable by adding a tiny amount of beeswax. For each quarter pound of wax add a piece of beeswax approximately the size of a pea. Too much beeswax will lower the melting point of the wax and the heat generated by grinding will loosen the stone.—Verdugo Hills, California, Gem and Mineral Society's *Rockhound News and Views*

The safest way to remove stones from a dop stick without breaking them with pressure, or cracking them with heat is to place the cemented stone in a pan of ice. When the ice melts your stone will be on the bottom of the pan and the stick will be floating on the water.—Verdugo Hills, California, Gem and Mineral Society's *Rockhound News and Views*

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GEMS AND MINERALS

ROCKHOUNDS REDISCOVER PINK AGATE ON MINGUS MOUNTAIN

The value of a treasure is a relative thing. While the United Verde Mine was industriously digging into Mingus Mountain at Jerome, Arizona, for copper, Nature serenely guarded a delightful secret on the north side of the great mountain — and waited. In 1946 a couple of curious rockhounds stumbled onto the secret, a virgin deposit of beautiful pink agate jutting out of the ground in great chunks.

"There are only two kinds of rocks," said one Yavapai County miner with finality, "metallic ores and junk!" Members of the Mineralogical Society of Arizona, guided by Moulton B. Smith, recently went after the "junk" and they are now cutting and polishing some of the loveliest of Arizona's pink gem stones. "It's the first time," they report "that we drove right into a deposit and just loaded up."

The road going through the deposit goes from Jerome over the mountain to Perkinsville. Coming up from Perkinsville, a little pink road, colored by iron oxide, winds among green junipers following the old historic narrow gauge railroad used in the early days to transport copper from Jerome to Chino Valley.

LOS ANGELES COUNTY GOLD STRIKES PRECEDED '49 RUSH

Over half of the \$2,500,000 in gold produced in Los Angeles County came from the Governor Mine near Acton. About 20,000 ounces came from the Saugus and San Gabriel placers and approximately 50,000 ounces from the lode mines in the Acton-San Gabriel area. With little exception, little gold production has been reported from these north county areas since 1942. The one exception is at Azusa where gold is produced as a by-product at a sand and gravel operation. Because of soil sediments in the sand and gravel, all the material taken from the earth has to be washed and it is during this process that the gold is removed.

The Castaic placers were first discovered and worked in the 1830s. In 1857 6000 persons were engaged in gold mining in the north county area. The early discoveries were not publicized by the Mexican authorities who probably foresaw what a gold rush, like the one in 1849, would do to their hold on the state.—Delvers Gem and Mineral Society's *Delvings*

Vivienne M. Dosse, California Federation exchange bulletin editor, has been awarded the Woodruff Cup for her thumb-nail specimen exhibit at the National Federation convention and show in Washington, D. C. This marks the first time a National Award has been made for the finest mineral collection exhibited at a federation show.—*Arrow Points*

The famous agate fields of Muscatine have been closed to all rockhounds and other trespassers, the Omaha, Nebraska, Mineral and Gem Club reports. Vandalism and unintentional damage were blamed for the action.—*Rear Trunk*

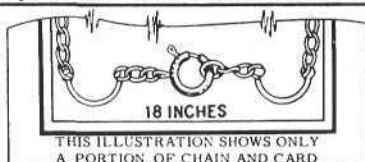
AMERICAN FEDERATION NAMES NEW OFFICERS FOR 1956

A. L. Flagg was elected president of the American Federation of Mineralogical Societies at that organization's recent convention. Harry Woodruff was named vice president; Hazen T. Perry, secretary; Vincent Morgan, treasurer; and Ben Hur Wilson, historian. The Federation's 1956 convention will be held in Minneapolis in conjunction with the Midwest Federation conclave in July. — Arizona Mineralogical Society's *Rockhound Record*

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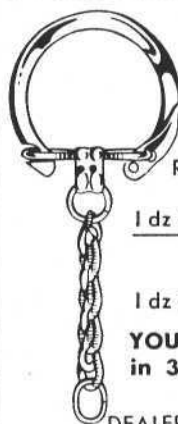
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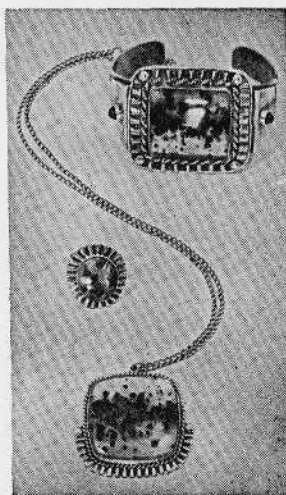
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ROCK COLLECTORS—Attention! For better rocks visit the trailer rock store, 69-457 Hiway 111 between Palm Springs and Palm Desert. Open any day you find us home. Mail address: Box 181, Cathedral City, California. The Rockologist (Chuckawalla Slim).

TRUE OR FALSE ANSWERS

Questions are on page 29

- 1—False. "Jumping cholla" is a cactus.
- 2—False. Ground owls and rattlesnakes sometimes usurp the prairie dog's hole, but they never dwell together in peace.
- 3—True.
- 4—False. The Mormon Battalion was recruited while the Mormons were camped in Iowa enroute to their promised land in Utah.
- 5—False. "Ichy" was a fish.
- 6—True. 7—True. 8—True.
- 9—True.
- 10—False. Petrified wood is stone.
- 11—False. Walpi is on the Hopi reservation.
- 12—True.
- 13—False. Turkeys are natives of North America.
- 14—False. Billy the Kid (William H. Bonney) was born in New York City in 1859.
- 15—True. 16—True. 17—True.
- 18—False. Good treads are best for sand.
- 19—False. Shiprock is far to the northwest of Albuquerque.
- 20—False. The Colorado River leaving Grand Canyon flows many hundreds of miles before reaching sea-level at the Gulf of California.



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NEW MEXICO TURQUOISE RIVALS STONES FROM PERSIA

The finest blue turquoise comes from the famous mines near Nishapur in the province of Khorasa, Persia. However, New Mexico and other areas in the Southwest have yielded blue turquoise that matches the Nishapur stones, as well as fine greenish-blue stones. Indians in the Southwest mined turquoise centuries before the white man came to this continent.

Turquoise is most often cut in cabochon and also is frequently cut so that the finished gem includes some of the matrix in which the turquoise is found. This matrix is a brownish or yellowish limonite usually in the form of slender veins in the turquoise. This combination of colors and design produces an interesting effect.

Turquoise jewelry belonging to Queen Zer of the First Egyptian Dynasty has been uncovered. The stone was carved and set with alternate plaques of cast gold. Turquoise, the ancients believed, brings success in love and money.—Compton, California, Gem and Mineral Club's *Rockhound Call*

INDUSTRIAL EXPANSION THREATENS INDIANA DUNES

The Indiana dunes may be destroyed if proposed plans to develop the Burns Ditch area as an industrial harbor are carried out, Chicagoans were warned.

The dunes have been considered one of the natural wonders of the modern world and they are a "must" on the itinerary of geologists traveling through the midwest.

Most of the fine sand that makes up the dunes is of glacial origin which has been transported to the south end of Lake Michigan by the longshore currents. The sand is predominately white quartz grains, with minute quantities of red, yellow and brown feldspar, a few grains of garnet and some grains of black ferromagnetism.—Marquette Geologists Association's *Bulletin*

NEW METHOD DEVELOPED TO DETERMINE AGE OF ROCKS

A new method of dating rocks has been perfected by United States and Canadian research workers.

Former methods used the measurement of uranium and lead to determine age. Because uranium disintegrates into lead at a measurable rate, the age of the specimen under study could be estimated.

The newer method is based on potassium which has the advantage of being much more common than uranium. Potassium decays to form compounds of argon over a period of millions of years. Potassium and argon contents of a rock are analyzed and measured. The relative amounts of both are used to determine the age of the specimen.—Seattle, Washington, Gem Collector's Club's *Nuts and Nodules*

TUCSON CLUB SETS DATES FOR SECOND ANNUAL SHOW

The Tucson, Arizona, Gem and Mineral Society recently announced that it will hold its Second Annual Gem and Mineral Show on March 16-18. The affair will take place in the north end of the Pima County Fair Building at the Fairgrounds on South Sixth Ave. and Irvington Road.

Ribbons will be given for first, second and third places in each of several classifications including mineral collections, lapidary work, metal crafts, fossils, oddities and others. Adult and junior entries will be judged separately.

Zircon was known in medieval times as a cure for plague and other ills. The striking characteristic of the zircon is its brilliancy and fire. Among the popular gems it is only outshone by the diamond. The ancients also believed this stone could cure insomnia. Today the chief source of zircon is the gravel-beds of Ceylon.—Compton, California, Gem and Mineral Club's *Rockhound Call*

Ruth Broderson, Editor of *Quarry Quips*, bulletin of the Wichita Mineral Society, is conducting a survey of costs and methods of issuing society bulletins.—*Arrow Points*

To clean garnets use a good strong solution of hot water and soap suds with a good stiff brush. If this does not work, use a mild form of acid.

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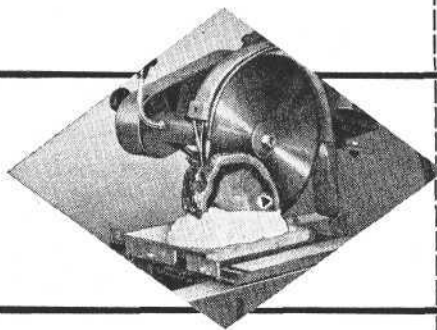
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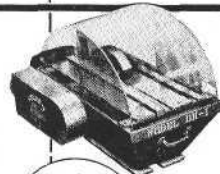
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GEOLOGICAL SOURCES OF IMPORTANT GEM MINERALS

Geological sources of the most important gem minerals are:

Igneous rocks: basic rocks — diamond, garnet. Pegmatites—emerald, beryl, topaz, spodumene, tourmaline and quartz.

Secondary deposits: alluvial sand and gravels — diamond, sapphire, ruby, agate, jadeite, rock XI, tourmaline, beryl, chrysoberyl, amethyst.

Deposits from water: opal, turquoise, malachite and quartz.

Metamorphic rocks: crystalline limestones—ruby, sapphire, lazurite, spinel and emerald. Schists and gneisses—jadeite, nephrite, emerald, garnet and chrysoberyl.

Here are some terms that are often used in the hobby:

Intrusive: rocks formed by the solidification of magma below the crust of the earth.

Extrusive: rocks formed by the cooling and solidification of magma above the crust of the earth.

Batholith: huge intrusive rocks that so far as is known extend downward indefinitely.

Stocks: intrusive rocks exposed to view as a result of erosion—usually circular in shape.

Dikes: the filling of a tabular fissure in rock masses by molten magma injected in a pulsating movement.

Neck: the column of solidified magma that occupies the conduit of a volcano leading to the depths below.

Laccolith: solidified magma which was injected between the layers of rock faster than it could spread laterally so that it arched the overlying strata.

Sill: solidified magma which spread out in sheets between layered rock.

Vesicles: openings in rocks left by the escaping vapors and gases as the molten material was cooling.

Amygdaloid: rocks whose vesicles have been filled later with material deposited by water.

Phenocryst: mineral crystals within igneous rocks, larger than the finer-grained rock matrix, formed as the magma was cooling.

Syncline: downward fold in stratified rock.

Till: unstratified and unsorted glacial drift deposited by glaciers. — Evansville Lapidary Society's News Letter

One of the rare metals coming into prominence is germanium. This metal is an essential element in the "two-way wrist radio" for it is a speck of germanium which makes possible the magic substitute for vacuum tubes. Germanium is recovered as a by-product in the treatment of zinc concentrates and other potential sources are copper, lead, zinc ores of southwest Africa and fuel dusts from coal containing germanium. Market price today is approximately \$340 per pound, and the demand far exceeds the supply.

Cutting material similar to that found at Flint Ridge, Ohio, is being found at the gravel pit near Geist Reservoir, Indiana. Some massive feldspar has been picked up there, along with quartz with small garnets enclosed, granite and chert. Also found were a few Petoskey stones and some coral, and one crinoid stem with a star center. Fossils are sparse, however, and so water-worn that they are difficult to identify. Visitors are welcome on the weekends.—Indiana Geology and Gem Society's *Geologem*

STARDUST JEWELRY EXHIBITED AT ARIZONA STATE FAIR

Star attraction of the recent Arizona State Fair Mineral Show in more ways than one was H. H. Nininger's meteorite exhibit. Dr. Nininger displayed some of the world's most unique out-of-space visitors from his American Meteorite Museum at Sedona.

The display featured jewelry made from authentic stardust which was formed by the cooling within our own atmosphere of an incandescent cloud of metallic vapor — a cloud formed when a giant meteorite exploded to form the Arizona Meteorite Crater.

This explosion turned the nickel-iron meteorite into vapor and created, for a brief instant, a small star which rained down tiny spheres of metal. These spheres were polished to a brilliant luster and set in clear plastic by Dr. Nininger—true stardust jewelry.

Among the other unique displays was that of Mr. and Mrs. Harry V. Hill who showed their first thumbnail specimen collection, made in 1944 and placed in a home-made box, alongside their 1954 box of brilliant specimens. Caption under the display read: "What we have learned in 10 years by joining a mineral society."

Arthur Flagg's exhibit showed the entire process in mounting mineral miniatures, step by step.

Rockhounds were reminded recently by Harvey Rutledge, leaseholder of the Calico Mountain, California, silver onyx deposit, that the property is privately owned and has not been open to collection since 1938. He reports recent damage to the property by rockhounds. Charles Smith, according to Rutledge, owns the property.

Arthur Blocher of Bureau, Illinois, reports the discovery of a pocket of very beautiful calcite crystals in a quarry near his home.

RATTLEWEED GOOD INDICATOR OF URANIUM, REPORTS OFFICIAL

The rattleweed (*Astragalus*), a herb with odd-pinnate leaves and persistent stipules, is regarded in some quarters as a fairly good indicator of uranium deposits below the surface of the earth. While it is not an unfailing sign, it holds its average pretty well.

Some believe the plant has an affinity for the soil under which uranium deposits are lodged. The discovery of this relationship was made two years ago when an old Indian, who lived near Grants, New Mexico, came to Thomas O. Evans, chief mining engineer for the Santa Fe at Prewitt and head of the company's uranium development program in New Mexico, with the news that he had lost 300 sheep in one night.

Evans agreed to look into the matter. He carefully examined the ground upon which the sheep died and found nothing there resembling ground glass or poisoned bait.

Evans noticed, however, that there was a profuse growth of rattleweed in the vicinity. Suspicious and curious, he had some of the rattleweed analyzed by a chemist. The chemist found that the plants contained considerable amounts of the mineral selenium and slight traces of uranium.

Evans decided to prospect the ground and high grade uranium ore was discovered. Further investigation by the company bore out the relationship between uranium and rattleweed.

The plant is dark green and stands about two feet high. Pear-shaped seed pods give it its name.—*Nevada State Journal*

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16" floor model, \$110
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Real rockhounds saws favored for their big capacity and lifetime construction. "Magic-Brain" automatic feed for above \$46.35



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HILLQUIST TRIM SAW
The "Cadillac" of trim saws. Exclusive "up-and-down" arbor. "No-splash" plastic guards. Precision rock clamp and guide. Complete with 8" blade, \$62.50



HILLQUIST GEM DRILL-HOLE SAW
Drills finest holes at high speed and saws discs up to 1 1/2". Exclusive ramrod action prevents core plugging. Fully automatic. \$68.80



HILLQUIST COMPLETE FACETER
Only \$62.50 complete with 3 index plates. You can cut any faceted form quickly and easily. The equal of faceters costing twice the price.



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ATTENTION ROCKHOUNDS

By Helena Ridgway Stone

You may keep your samples of turquoise, amethyst,

Tungsten, emerald, dakeite, pan gold, too.

The hobby I've developed and simply can't resist,

May never in this world appeal to you.

It has no connection with polished agate rock,

Nor the durability of ancient jade;

Nor is it botanical—to me a hollyhock

Means a lot of work for such a little shade.

My avocation's thrilling; it's one I'll never throttle

Until I've combed the desert, and found a purple bottle!

URANIUM BEARING MINERALS NUMBER 22 IN ARIZONA

Twenty-two species of uranium bearing minerals identified in Arizona to date include:

Carbonates: andersonite, bayleyite, schroederite, swartzite.

Niobates-tantalates-titanates: brannerite, euxenite, fergusonite, microlite, polycrase, samarskite.

Oxides: thorianite, uraninite.

Phosphates: autunite, metatorbernite, monazite, torbernite.

Silicates: kasolite, thorite, uranophane.

Vanadates: carnotite, tyuyamunite, volborthite. — Arizona Mineralogical Society's *Rockhound Record*

Of all the alloying elements utilized in steel manufacture, molybdenum is the only one in which the United States is self-sufficient. Molybdenite has a wide range of geologic occurrences, but nearly all are genetically related to acidic igneous rocks. — *Mineral Information Service*

The Tacoma, Washington, Agate Club celebrated its 15th birthday recently with a Birthday Dinner at the South Park Community Center.

Riverside County Fair and NATIONAL DATE FESTIVAL

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Riverside County GEM AND MINERAL SHOW

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The San Diego, California, Lapidary Society announced the purchase of a lot on the corner of Linda Vista Road and Josephine Street. The club plans to erect a clubhouse at that location.

What is believed to be the world's largest circular diamond saw is being used to cut the familiar red granite of Scotland. The blade has a diameter of 11½ feet and is nearly an inch thick. — *The Mineralogist*

Unakite is an attractive blending of pink feldspar, quartz and green epidote in a hard homogeneous mass. It occurs in many places in the mountains and foothills of Virginia and Pennsylvania.

The largest alluvial diamond ever found in the United States is the Punch Jones Diamond, which weighs 34.46 carats. This stone was discovered at Peterstown, West Virginia in 1928, and is now on exhibit at the Smithsonian Institution in Washington, D. C. — Evansville Lapidary Society's *News Letter*

G. Langford, staff member of the Chicago Natural History Museum's geology department, gives the following recipe for cleaning and enhancing the appearance of fern fossils: mix three tablespoons yellow dextrin to a quart of water. Wash the fossil first and then apply the solution. — Chicago Rocks and Minerals Society's *Pick and Dop Stick*

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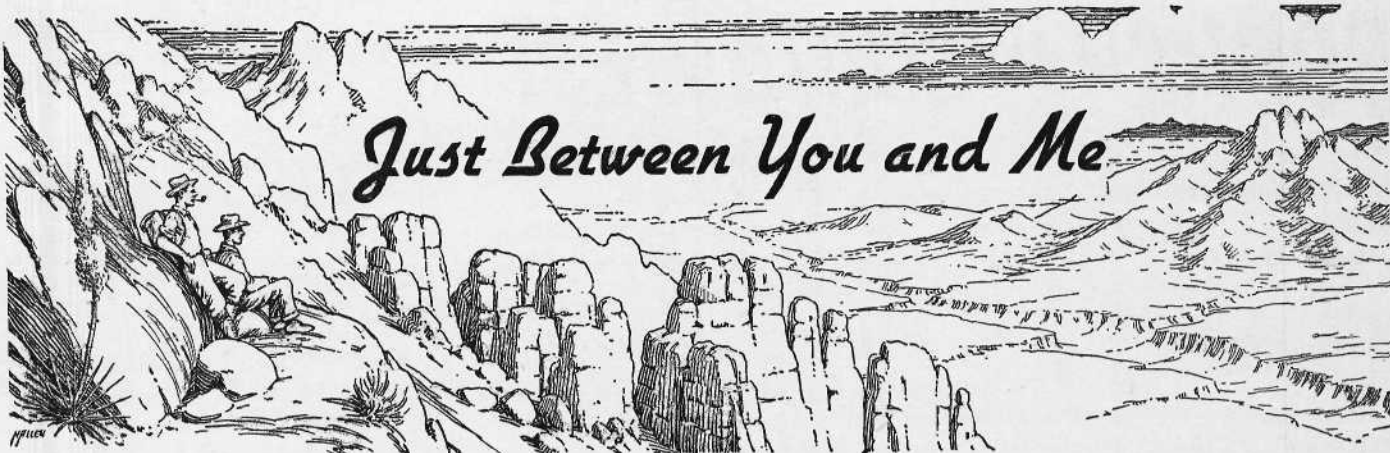
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6" diameter by .025" thick	7.80	12" diameter by .040" thick	18.20
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By RANDALL HENDERSON

THIS IS AN interesting period in which to be living. All over the world, and especially in Asia and Africa, there is revolt against colonialism. The natives want to own their own lands and manage their own affairs. And I have no doubt that eventually they will attain that goal.

Thoughtful Americans are well aware that a parallel, and in some respects, a similar struggle, is going on here within the United States, and especially on the Great American Desert. It is similar to the extent that all humans everywhere aspire to the freedom and independence of democratic self-rule.

I am referring to the controversy which now centers around the status of the American Indian.

In recent years the federal government in Washington has been working toward the day when the restrictions of a federal guardianship would be removed from all Indians in the United States. The reservations would be abolished.

This program received new impetus when Dwight Eisenhower became president and Glenn L. Emmons was appointed chief of the Bureau of Indian Affairs. The goal is to remove guardianship restrictions as rapidly as the Indians are ready to assume the responsibilities of full citizenship.

Already some legislation in this direction has been passed, and other bills are pending. But a majority of the Indians are not yet ready to assume the obligations which go with the rights of full citizenship—and they know it.

Some of the same groups which once were demanding more rights for the Indians, are now accusing Uncle Sam of turning his helpless orphans loose in a cruel and greedy world without visible means of support.

Actually, Uncle Sam is doing nothing of the sort. President Eisenhower, early in his term, directed Indian Commissioner Glenn L. Emmons to visit all the major tribal groups and "give them an opportunity for a full expression of their desires, suggestions, hopes and aspirations," and to invite the cooperation of the Indians in working out programs for the termination of federal controls. Both Commissioner Emmons and congressional committees on Indian affairs have worked faithfully toward this end.

One of the chief critics of present federal policies in Indian affairs is Oliver LaFarge of the Association of American Indian Affairs, an organization financed by non-Indians. This group, once the exponent of more rights for the Indians, has now reversed its position and is blasting the federal administration for its efforts to extend greater rights to the tribesmen.

Newspaper reports covering the controversy have been very confusing.

I have wondered what the Indians themselves were

thinking about all the hullabaloo. The answer came recently in a copy of a letter written by Paul Jones, chairman of the Navajo Tribal Council, to LaFarge.

In Jones' 3000-word letter I found more sanity and statesmanship than in any other utterance which has appeared in the long controversy. Jones is very appreciative of the fact that this year, for the first time in history, all Navajo children have been provided with school facilities, and he gives full credit to Commissioner Emmons for that achievement.

Under present policies of the federal government, all reservation lands are tribal lands. An individual Indian might obtain a given piece of land by allotment—but he never could obtain a clear deed to the property. He could borrow no money on it to build a good home, and because of the allotment scheme, Indian veterans were barred from the benefits of the G.I. bill insofar as home ownership on the reservation was concerned.

Jones wrote to LaFarge: "Do you own your own home? Do not the overwhelming majority of your directors and members own their own homes? Many of us (here on the reservation) would like to do likewise, and I have under consideration at this time, proposing legislation which would authorize the establishment of townsites at the growing communities in the Navajo Reservation. . . . Our younger people would find satisfaction for their aspirations toward home-owning if they could buy land in such townsites, particularly those who are employed in the uranium mines, lumber operations, mills and other commercial activities in these communities."

Certainly that is a privilege which should be extended to the Indians without waiting for the ultimate disposal of the reservation as a whole—the right of the individual Indian to obtain an unrestricted deed to a parcel of land which he could call his own, for the building of a home and such other improvements as he wants to make. Certainly that will be a long step toward the dignity of full American citizenship.

* * *

Human beings need space. Too much crowding brings out the worst, rather than the best in man's nature. And that is why we need the timbered mountains and the deserts—places where men and women and children may spend a little part of their lives at least, apart from the crowd, in an environment of God's own making. There it is a little easier to get close to the Creator of it all—to appraise more accurately the things that are really important in life—to realize that while modern plumbing and plush automobiles and television are convenient gadgets to have, they bring only a superficial kind of satisfaction. They do not build character. And so we want to keep the desert clean and its air pure—a sanctuary where the far horizon will not be obscured by the ugliness that human greed too often creates.

BOOKS of the SOUTHWEST

ENTERTAINING, INFORMATIVE DESERT GUIDE RE-PUBLISHED

Edmund C. Jaeger's *The California Deserts* has recently been published in its third edition. More than a mere handbook on the various aspects of the state's high Mojave and low Colorado deserts, this book has been, since it first appeared in 1933, one of the most authoritative sources of information on the plant and animal life of the desert country.

Dr. Jaeger writes with the authority of a scientist and explorer, but in an informal and friendly style that gives his books widespread popularity with the lay reader. The new edition is slightly revised from the two previous ones but is enlarged by 16 pages of desert photographs. Dr. Jaeger's many line drawings are included in the new edition.

Two chapters, "Snails and Other Mollusks" by S. Stillman Berry, and "The Aborigines of the Desert" by Malcolm J. Rogers appear in *The California Deserts*.

Southwest residents and visitors will find this book both entertaining reading and excellent for reference—a rare combination.

Published by Stanford University Press, Stanford, California; 211 pages; 16 pages of photographs; line drawings; selected references; index; \$5.00.

• • •

DEATH VALLEY TALES

Here is a little book that brings together the best of desert stories by the best of desert writers—*Death Valley Tales*, the third in a series of annual publications by the *Death Valley '49ers*.

The nine tales and their authors are: "When Death Valley Took Its First Toll," by Phil Hanna; "Hungry Bill Talks," by Carl Wheat; "The Battle of Wingate Pass," by Arthur Woodward; "The Law at Greenwater," by the man who administered that law, Charles A. Brown; "Mule Skinning in 1905," by Capt. R. A. Gibson; "So None Died of Thirst," by John Hilton; "Charles Alvord, His Rescue and His Murder," by Ardis Manly Walker; and "The Story of 'Cap' Lemoigne," by Jim Nossner.

Published by Death Valley '49ers, 59 pages, \$1.

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COLORADO RIVER STEAMSHIP FEUD AIRED IN NEW BOOK

Who was the first man to steam up the Colorado to the head of navigation? History has given the laurel for this feat to Lt. Joseph C. Ives, but Arthur Woodward makes a strong case for George Alanzo Johnson, independent riverman of Yuma, in his book, *Feud on the Colorado*.

To Lt. James L. White, who accompanied Johnson, should go the nation's gratitude for writing the first report on the river's navigability, Woodward believes.

But White and Johnson received only bitterness for their efforts while Ives reaped fame. Why? Woodward suggests that Ives, whose uncle by marriage was the Secretary of War, was an influence-wielding Eastern Dandy; that Johnson's offer to officially explore the river for the government was deliberately turned down to leave the door open for Ives; that White's report was never published for the same reason.

Despite the fact that the author seems not to allow enough consideration to the fact that Ives' report was many times broader than White's, that his observations extended to the zoology, botany, geography and people of this great area, rather than merely to the problem of river navigation, the reader will find in Woodward's book sufficient fuel to kindle his interest in this historical point.

As far as is known, White's report is published for the first time in *Feud on the Colorado*.

Westernlore Press, Los Angeles,

publishers; 165 pages; comprehensive bibliographical notes; illustrations; index; \$4.75.

• • •

TECHNICAL SERIES PRESENTS MONTEZUMA CASTLE FINDINGS

The Southwestern Monument Association of Globe, Arizona, has resumed publication of its technical series with two works on Montezuma Castle in central Arizona. The hitherto unpublished manuscripts are both records of pre-war archaeological work done at the castle.

Montezuma Castle Archeology, Part 1: Excavations, written by Earl Jackson and Sallie Pierce Van Valkenburgh, is an important account of the findings at Castle A, the large burned cliff dwelling ruin near the main castle. The book is technical but readable and not overly difficult for the layman to digest. Students of Southwestern archeology will find it invaluable. Also included in the book is an appendix, "Crania from Montezuma Castle and Montezuma Well," by Katherine Bartlett.

Montezuma Castle Archeology, Part 2: Textiles was written by Kate Peck Kent. Expert and amateur weavers will receive priceless information from this work. Each individual pattern is diagrammed and the manufacturing technique explained. Indian sandals, cordage, netting, matting, nets, bags and other textiles were recovered at the ruins and are all presented in the book.

Published by the Southwestern Monument Association, Box 1562, Globe, Arizona.

Excavations: 84 pages, 17 line figures, 46 collotype plates, folding map of grounds. Appendix on crania, references. Paper cover, \$3.00.

Textiles: 102 pages, 50 halftone plates, 44 line figures, eight compilation analysis tables. Paper cover, \$2.

... the fascination of Death Valley as revealed by the true and inspiring stories of colorful men in a colorful region ...

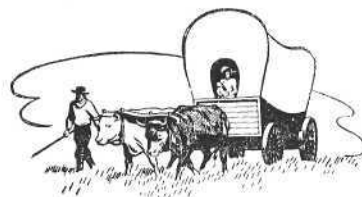
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GREETINGS To Desert's New Readers:



During the Christmas season many thousands of new subscribers were added to Desert's mailing list—most of them gift subscriptions—and to these we extend our greeting and the hope that they will enjoy this magazine of desert travel, recreation and living during the months ahead.

For the information of new readers, as well as long-time friends, Desert was started in November, 1937, and we still have copies available of all the back issues except that first number which is now very hard to obtain.

Down through the years Desert has printed many illustrated features, often with maps, covering every phase of life on the desert: Field Trips for the Mineral Collectors, History, Archeology, Exploration, Lost Mines and Treasure, Ghost Towns, Botany, Reptiles, Indian Life and Lore, Mountain Climbing, Adventure, River Expeditions, Wildlife, Homesteading, Desert Art and many other subjects.

In order that these back copies may be available for those who are interested in particular phases of the desert, we offer sets of back issues, in each of which will be found at least one illustrated feature story pertaining to the subject in which you are most interested. These sets of back copies dated from 1942 to 1956, are available as follows:

Mapped Gem and Mineral Field Trips: 6 copies \$1.00; 12 for \$2.00; 18 for \$3.00; 24 for \$4.00; 30 for \$5.00.

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Travel and Exploration, many of them with maps: 6 for \$1.00; 12 for \$2.00; 18 for \$3.00; 24 for \$4.00.

Ghost Towns of the Old West, with maps: 6 for \$1.00; 12 for \$2.00; 18 for \$3.00.

Indian Life and Lore: 6 for \$1.00; 12 for \$2.00; 18 for \$3.00; 24 for \$4.00.

History, some with maps: 6 for \$1.00; 12 for \$2.00; 18 for \$3.00.

Mountain Climbing and Exploration: 6 for \$1.00; 12 for \$2.00; 18 for \$3.00; 24 for \$4.00.

Wildlife, including Reptiles: 6 for \$1.00; 12 for \$2.00; 18 for \$3.00.

Most of these back issues are newsstand returns, but they are complete and in good condition, and will be sent well wrapped and postpaid for the prices quoted. There is no sales tax on magazines.

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